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AMSTRAD COMPUTER USER
ACU



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BRUNNING'S INFO SCRIPT – THE TRUE POTENTIAL UNVEILED

MUSIC MAESTRO
EVERYTHING YOU NEED TO KNOW ABOUT MAKING SOUNDS ON YOUR CPC

OFFICIAL
THE MAGAZINE FOR THE AMSTRAD 464, 6128 & GX4000 CONSOLE

PURE DYNAMITE
TNT, WHEELS OF FIRE, HOSTAGES AND MUCH, MUCH MORE IN THE ACU EXPLOSIVE GAMES GUIDE

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THE ARCADE EXPLODES!
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As the pilot of an all powerful combat vehicle, you are engaged in the hot pursuit of terrorists. Go into combat and be confronted by enemies as different in their appearance as in their combat techniques.
The ability to take to the air will be your strength, use this to outmanoeuvre the enemy.
Pick up weapons, ammunitions and fuel. You'll have to work your way through the entire convoy and destroy the leading vehicle, before the ULTIMATE EXPLOSION.
NUCLEAR threat... Stop. DESTROYER CONVOY detected.. Stop. Wipe out the TERRORISTS.. Stop. Scientists in DANGER... Stop. IMMEDIATE ACTION.. End of transmission.



QUICK REFLEXES, SPEED, INGENUITY AND NERVES OF STEEL ARE REQUIRED TO OBLITERATE THE OPPRESSOR.
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BrunWord

BrunWord 6128 £30

BrunWord 6128 is a complete word processing package with word processor, spelling checker and card filing programme. BrunWord 6128 out performs all other word processors for the CPC6128. It has its own high speed screen routine, giving it a very fast screen response and the editor features are logically arranged to be easy to learn. The spelling checker, with its dictionary, load into memory at the same time as the word processor, making access very convenient and exceptionally fast. It is supplied with an introductory tutor file.

BrunWord Features

*40, 80 or 128 column display. *Touch typing speed over 200 words/min. *True insert or overwrite. *Justify or unjustify paragraph or whole text. *Justified text has balanced appearance. *Instant word wrap. *Block save, move, copy, insert and delete. *Local editing with word delete/undelete. *Adjustable margins and TABs. *Column/Line/Page display with file name. *True word count. *Find and replace. *Help menus. *Memory filing system. *Single character embedded printer commands (18 with 3 codes and 21 with 10 codes). *Page throw markers. *Multiple copies. *Odd/even page headers/footers with page numbers. *Multi file printing (new page or continuous). *Print specified pages. *Works with any printer. *True display superscript and subscript numbers. *User defined print characters. *Load/Save ASCII files from/to other word processors. *Files can be encrypted. *Maximum file size about 9 pages of text.

BrunSpell Features

*Memory resident. *Checks 4,000 words/min. *30,000 word dictionary. *No American spellings. *Add up to 5,000 of your own words. *Instant lookup. *Helps to find correct spelling. *Automatic correction.

DataFile Features

*Alphabetical, numerical, date sorting. *User defined headings. *Search routine. *Data merging. *Label printing.

Free Booklet

Our 16 page free booklet explains all about our programmes. No need to write a letter, just send a large (A4 size) SAE to 'BrunWord & Printer', Brunning Software, at the address below.

Info-Script £50

Info-Script is a complete data processing package and includes all the features of BrunWord 6128 and BrunSpell. The word processor and database can be resident together giving the speed and convenience of access to both programmes with no disc delays.

Database Features

*Very fast (e.g. takes 1 second to search 2000 addresses for surname 'Smith', initial 'B'). *Specific field search and/or progressive general search. *Instant sort on any field, alphabetical, numerical, date or reverse order (takes no time as the data does not move). *3 sets of user defined headings for each file. *4 markers for instant selection, plus one temporary marker. *Markers can be cleared or inverted and any pair can be added (allows complex searches to be quickly and easily performed). *No setting up of field type or length. *Efficient storage. *Relational records, Parents, Sons and Daughters. *Simple field to field arithmetic with running total. *Direct data merging into BrunWord. *Easy direct label printing, 1 across, 2 across, left of 2 or right of 2. *Single or multi-step.

Data Merging Features

*Simple intelligent system, &N &A &D construct full name, full address and date. *&1 &2 etc specify individual fields. *Insert or fixed format merging. *Automatic justify after merging. *Single step (see before printing) or multi-step. *Stop any time, go to word processor, restart same place. *Merge data from several records for summary, invoice, purchase order etc. *Simple arithmetic. *Running total. *Running VAT total. *Conditional loading. *Conditional printing. *Repeat patterns.

Quotes

"It may seem that I have just written a very long advert for BrunWord 6128 but I haven't, I'm just so impressed." (Phil Craven, ACU Feb 90, page 25).

"One such is Peter Brunning's BrunWord 6128 which is without doubt in my mind, the most powerful and friendly word processor available for the 6128 today, with the possible exception of.... BrunWord Elite!" (David Dorn, ACU July 90, page 43).

BrunWord Elite £55

Most word processors, including BrunWord 6128, are able to drive both daisy wheel and dot matrix printers. This creates the need for a style of printer control that is acceptable to two very different types of printers. BrunWord Elite does not have this restriction as it is specifically written to be used only with dot matrix printers. This gives it a unique advantage over other word processors and as a result it is able to provide much more advanced printer control. This is taken even further, as BrunWord Elite is supplied with an 8 Bit Printer Status Port which allows the programme to continuously monitor the status of the printer, (and provides the missing 8th bit for the original CPC6128). This enables the programme to respond in a more sophisticated way than normally possible. It will wait for ON LINE or <ESC> if the printer is initially OFF or OUT OF PAPER but automatically returns to the editor if the printer is turned OFF.

24 Pin Fonts

Before we designed the fonts for BrunWord Elite, we studied several good magazines. Fineline and Finetype are our variations of the two styles commonly used. Fineline is supplied in 3 sizes and Finetype in 2 sizes. To these we added a display font in computer style and a straightforward 'Heavy' font. Altogether there are 7 fonts supplied, 4 are full 24 pin, 2 are middle size 21 pin and one is a small size 16 pin font.

BrunWord Elite Features

BrunWord Elite has all the features and speed of BrunWord 6128 and BrunSpell, plus:-

*Print in columns *Specify page layout *Use special high quality proportional fonts *Use advanced micro justification with proportional text *Set printer margins independently *Move print head up or down paper, specified in inches from top *Set micro line spacing within text *Print line or box by specifying size and line thickness *Use absolute TABs with proportional text *Download a file directly from disc during printing. *Can be supplied with Info-Script for data merging.

Headline

Headline is a print enhancement utility for use with low cost 9 pin printers. It enables virtually all the features of BrunWord Elite, including the 24 pin fonts, to be used with any 9 pin Epson compatible printer with quadruple graphics (that's all well known modern 9 pin printers). Features include micro justification of proportional text, single, double or eight times height and 1 to 9 times width.

Comparisons

We have tested BrunWord 6128, Protext and Tasword 6128 with the same file of 3366 words.

The first test was to compare the scrolling speed of the screen, using line by line scrolling. This is a vital performance test as the CPC6128 tends to be naturally slow at this task. BrunWord scrolled 40% faster than Protext which in turn scrolled 19% faster than Tasword.

Protext was the fastest to justify but used a simple process that added spaces at the centre of each line, giving the middle of the text a bulging appearance. It did not display as it went along and so needed a separate operation to see the result. BrunWord displayed as it justified and produced the best appearance of all three. BrunWord was 30 times faster than Tasword.

Our simulated typing test achieved 218 words per minute. Both BrunWord and Protext had no trouble at this speed but Tasword was very slow inserting text into the start of a paragraph and could only handle 16 words per minute.

The spelling test checked all 3366 words. BrunSpell took 52 seconds and needed no disc changes. Prospell took 6 min 24 sec and needed 8 disc changes. Taspell took 18 min 46 sec and needed 3 disc changes.

How They Compare

	BrunWord 6128 & BrunSpell	Protext Disc & Prospell	Tasword 6128 & Taspell
Typing into 241 word paragraph Typing into start of text	218 w/m 218 w/m	218 w/m 218 w/m	16 w/m 150 w/m
Scroll to end, line by line	1 min 27 sec	2 min 2 sec	2 min 25 sec
Justify paragraph of 241 words	1 sec	0·2 sec	34 sec
Change appearance to format and Appearance to Format	17 sec	17 sec	53 sec
Spelling check 3366 words Average speed Disc changes	52 sec 3883 w/m None	6 min 24 sec 526 w/m 8	18 min 46 sec 179 w/m 3
Spelling help 'NECESERY' Spelling check word at cursor	1 sec 0·5 sec	12 sec Not possible	Not possible Not possible
Screen format - columns Page boundaries	40, 80, 128 Shown	40 or 80 Not shown	80 only Shown

9 Pin Elite

The Elite system for 9 pin printers consists of BrunWord Elite, BrunSpell, Headline, 8 bit printer status port and 7 'type setting' fonts (fonts are 24 pin in size but only for 9 pin printers). Total price £55.00 inclusive.

9 Pin Elite+Info

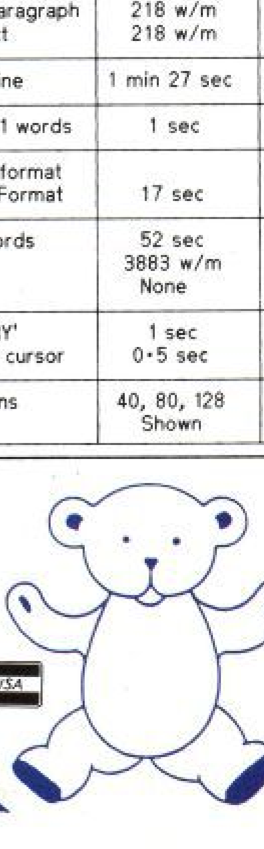
The Elite system as above but including Info-Script and a backup disc. Total price £92.00 inclusive.

24 Pin Elite+Info

BrunWord Elite, BrunSpell, Info-Script, back up disc, 8 bit status port and 7 'type setting' fonts for downloading to a 24 pin printer. Total price £90.00 inc.

Send cheque/PO/Access number/Visa number to:

Brunning Software
34 Helston Road,
Chelmsford, Essex, CM1 5JF
Telephone (0245) 252854 (24 Hours)



BrunWord 6128 with BrunSpell & DataFile. . . £30.00
Info-Script with BrunWord 6128 & BrunSpell. . £50.00
9 Pin BrunWord Elite £55.00
9 Pin BrunWord Elite with Info-Script. £92.00
24 Pin BrunWord Elite with Info-Script. £90.00
100 Letters (needs Info-Script). £15.00

Supplied on 3in Disc for CPC6128 or CPC6128 Plus.
You must state which computer.

All prices are inclusive for UK. Overseas orders sent insured air mail - Europe add £2.50 : Rest add £7.50

**Published by MSM Ltd.
A division of MCPC Ltd.
Panini House 116-120
Goswell Road,
London EC1.
Tel: 071-490 7161**

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Subscriptions
LAZAHOLD
PO Box 10, Ropper Street,
Pallion Ind. Est.,
Sunderland SR4 6SN.
Tel: 091 510 2290.
Yearly rates:
UK £17.40
Europe £24.20
Middle East
£24.50
Far East £27.10
Rest of the World £25.00
USA $41.65
Distribution
SM Distribution. Tel: 081-677 8111
Colour and Mono Origination
Ebony
Heathlands Industrial Estate
Liskeard, Cornwall
Tel: 0579 46880
Published on 1st Thursday of month preceeding cover date

REGULARS

FEATURES

ZIGGY'S MAILBOX



Wiry Problem

I have a real problem with my 464. What has happened is that the circuit board for all the keys has broken, because the wire in the circuit board has snapped, leaving a gap.

The place where this has happened is where you put the SV DC wire into the keyboard. Is there any way of fixing it? If so, please let me know and, if not, could you tell me where you can buy a brand new circuit board and how much it would cost?

Graham Woodward, Great Barr, Birmingham

Ziggy: Well, if you know where the break is, you should be able to take it down to your nearest TV or electronics repair shop to have it looked at fairly cheaply. I'm not too sure about the cost of a new board, but you could try ringing the Amstrad User Club to get in touch with Amstrad's Technical Department for advice. Happy hunting.

Cheat Zone

My family has gathered a fair number of computer games over the past three years. Our computer is a 6128, recommended by a friend and we have never looked back - a superb family computer.

Anyway, recently we have decided to try out some of the games with cheats. So far we have just looked back over old magazines etc.. for cheats.

I think it would be useful for ACU to publish sometime a book/magazine on cheats which makes life a little easier when playing games without getting zapped all the time.

Is anybody out there interested in compiling some cheats for me? I'm willing to pay a little although obviously, I only need the cheats for my games.

Keith Melvin, 3 Cairnlee Park, Bieldside, Aberdeen.

Ziggy: Well, taking a look at the fab Hairy's Pick outsert this month might help a little, although, as you say, you only need the cheats for your own games. Anybody want to give Keith a hand?

Info Time

Please could you send me more information on the Quickjoy 2 and also, do you know whether or not Player Manager is available for the CPC 464 and if so, how much does it cost.

Philip Wood, Morpeth, Northumberland.

Ziggy: I'd say the best people to contact for the Quickjoy would be Spectravideo, who market it over here, so try giving them a ring on 081 900 0024 to get all the lowdown. Soccer Manager is indeed available for the 464 from D&H Games for £9.99 and should be out in the shops, if not now, then very, very soon.

Dizzy Spells

Why is the Dizzy 3 Helpline recorded? I cannot get past it at all! I have tried ringing three times and have only managed to get the dragon to sleep. Please help me and please print my name and address as I would like to sell some of my old games, because my mum says I have too many and I want her to stop nagging me.

Paul Dugdale, 80 Charter Avenue, Newbury Park, Ilford, Essex.

Ziggy: The real problem for people like Code Masters is that if everybody rang them up to speak to them every time they had a problem with Dizzy, they'd never be able to get any work done, so I'm afraid we've got to make do with Helplines for the time being. As for your games, I'm sure somebody will help out to ease those nagging problems.

Goodie Gripe

I could have sworn I read in your letters that free goodies were to be given away on the front cover. What happened? Was this just getting my hopes up for nothing?

On another point, will we ever see an adventure section returning to the mag? Finally, can anyone tell me the secret word or whatever, to get into the 'Mad God's Catacombs' on Bard's Tale 1. I would appreciate it.

Paul Burnell, Havant, Hampshire.

Ziggy: Well, there is a little something on this month's front cover, as there will be on the next month's and the one after that. What we'll be doing later is still a mystery to me, but you never know. On the adventure front, it really is up to you lot out there. Send in any ideas or problems you've got to ACU and we'll see about getting it started again. Anybody got any ideas about Bard's Tale for Paul?

Help Wanted

I have just recently got a 464 and, being new to computers, I don't have much of an idea about certain things. First of all, I wish to create on tape a filing cabinet with phone numbers, dates etc.. but don't know how to go about it. If anyone can help me, I would be most grateful. I have already got Mini Office II.

I would also like maps for Riot and Sabouteur II and if anyone wants to swap Moto X Simulator for another tape, please let me know.

Pete Weaver, 49 Albert Street, Edinburgh, EH7 5LN.

Ziggy: Have you had a look at the database section on your Mini Office cassette? There are a number of database utilities available on the market and in public domain, so have a scout around and you should find something to suit you. Anybody interested in swapsies?

Brunword

To print a number of envelopes with the same address from your address file.

RUN BrunWord

Press <ESC> followed by '*'. The prompt "Insert DataLink File disk" appears. With the BrunWord disc still in the Drive, Press<ENTER> to load Link program

Press <ESC> followed by 'L' and enter file name "LABEL2"

When loaded remove BrunWord disc and replace with own data disc

Press <ESC> '*' to enter DataLink

Press 'J' to turn Justify to OFF

Press 'F' and enter the filename of your address file followed by <ENTER>

When prompt 'Find Phrase' appears type in name of addressee

When file appears on screen, Press 'T' and 'C' to continue

When name and address appears in format on screen press <ESC> and 'P'. (Brunword's own Print Menu should appear)

Press 'P' again and 'Y' for Single pages

Type in number of envelopes to be printed

Insert Envelope and press <ENTER>

When envelope is printed replace envelope with the next to be done and press 'C'

Repeat the last instruction until the required number of envelopes is printed.

Brunning Success

I was delighted to read Eddy Blackmore's article on the Brunword word processing program. It is about time that some attention was given to this excellent and simple to use piece of software. A lot has been written about Protext and other similar programs but as far as I can recall, this is the first for many, many months.

With one loading, not only is the word processing program installed, but also a 30,000 word dictionary with space for another 5000 words which you can add yourself. Also on the disc is a data file which can be used with a form of mail merge facility. I hope that Eddy Blackmore can find time to write some more articles on the use of Brunword 6128.



I enclose a procedure I devised using Brunword to print a quantity of envelopes using the same address. My neighbour has a disabled daughter whose writing was very hard to decipher and wanted some self-addressed-envelopes so that she could write to him and ensure the postman could read them. His name and address was in my Brunword data file.

I hope this will be of interest to users of Brunword.

Bill Wilson, Orton Goldhay, Peterborough.

Ziggy: Indeed it will, Bill. Thanks for the hard work.

PCW Blues

I have seen in the past issue of ACU that there is a listing called Space Mania. As I was given a few of these magazines by a teacher, I did not get all of this issue containing the game and so I am inquiring if this program would work on a PCW and, if so, could you please send me a copy or details of where I could get one.

M Trusty, Battersea, London.

Ziggy: Sorry old chum, the listing Space Mania was written in CPC Basic and so would quite probably be incomprehensible to the language your PCW might understand. Are you using Mallard?

Manual Moan

There must be others, like me, who cannot understand the CPC 6128 manual. Is there a mail order publisher with a good range of CPC books about programming and so on?

John Dearlove, Lower Halstock Leigh, Yeovil.

Ziggy: Sigma Publishing printed a couple of goodies about Amstrad programs, as did Prentice/Hall and Century I believe. If you go into your local good book shop and ask to see their backlists, you should find something to help you out. Alternatively, try the User Club, they've always got something up their sleeves to solve your problems.

DATEL ELECTRONICS



dk'tronics 64K AND 256K MEMORY EXPANSION

- Simple plug in memory expansion gives instant extra memory.
- Features bank switching software for easy use by the programmer or for use as a data storage area.
- The software also features some extra BASIC commands.
- 64K unit expands 464 to 128K. The 256K unit takes your 6128 to 320K!!
- 64K unit brings 464 up to CPC 6128 memory configuration making a much larger software base available. Will work straight off with many programs designed for this unit (including OCP Art Studio - see Ad.).
- Ideal for use with the CPM 2.2 etc.
- Bank switching done automatically by software (cassette 464 - disk 6128).

ONLY £49.99 64K FOR 464
ONLY £99.99 256K FOR 464 OR 6128 (PLEASE STATE)

THE RAM MUSIC MACHINE IS PROBABLY THE MOST EXCITING MUSIC ADD-ON AVAILABLE FOR ANY COMPUTER

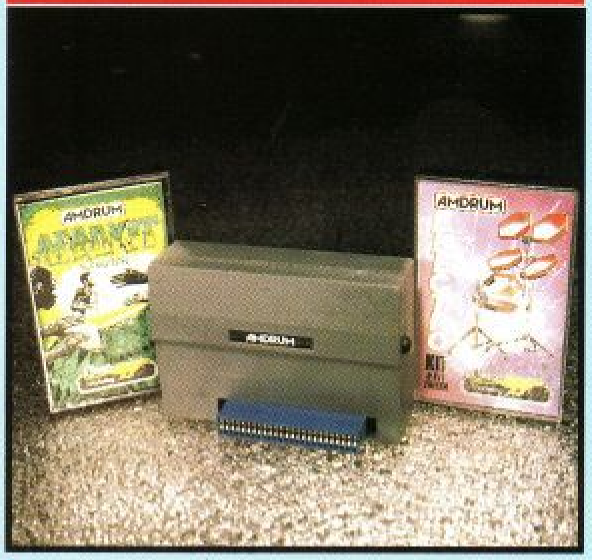


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- The extremely powerful software allows you to compose tunes from individual bars of music. You can edit your creations on screen & Save/Load sounds, instruments & rhythms.
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- Comes complete with DrumKit Sound plus extra DrumKit and Kit Editor Program (worth £9.99) absolutely FREE!!

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SPEECH SYNTHESISER & STEREO SOUND BOOSTER

- This easy to use Speech Synthesiser includes a powerful Stereo Amplifier and two pod speakers which are an enormous improvement on the sound supplied by the internal mono speaker.
- Speech output is monorial but directed to both speakers. Booster gives stereo to computer internal sound output.
- Using the SPO/256 Speech Chip the unit has almost infinite vocabulary.
- Text to speech software is provided in ROM to make speech output simplicity itself.
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ONLY £29.99
464 OR 6128 (Please state which)

dk'tronics LIGHTPEN/GRAPHICS SYSTEM



- Complete Lightpen and graphics system lets you create a whole range of effects on screen.
- It can magnify, shrink, colour fill and create circles, rectangles, lines and curves.
- Pictures can be edited at pixel level using a scratch pad which is magnified to a full screen.
- Picture storage and retrieval, and a pen calibration feature.
- Printer dump utilities for Epson/Amstrad printers supplied (on cassette).
- Complete package - no more to buy.

ONLY £14.99 CASSETTE
OR £24.99 WITH SOFTWARE ON ROM - NOTHING TO LOAD 464 OR 6128 (Please state which)

Giant Shopper

Amstrad has announced that it will be taking centre stage for the second annual Computer Shopper show at the Wembley Conference Centre from December 6 to 9.

The show that smashed all previous records for pre-Christmas computer exhibitions last year, looks all set to retain its title of the world's largest CPC event, with over 100 of the 280 stands being dedicated to Amstrad related products.

All of the new CPC goodies will be on display on the Amstrad stand and a special Advice Centre will dispense free guidance on your favourite machines.

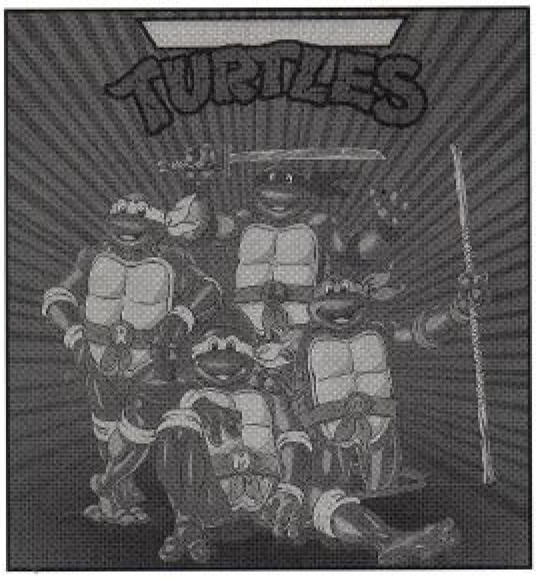
Amstrad's Marketing Services Manager Chris Anstey said of the show: "We view this as a very exciting event, and it is a more than adequate replacement for our Amstrad Christmas Show."



Other big names attending the event include Anco, CDS, Database Software, Hi Soft, Mediaware, Ocean, Turbosoft and Westoning. So, if you want the best from your machines, make your way to the show and get into the Festive spirit.

Showtime

If you didn't manage to make it down to the mammoth Computer Entertainment Show at Earl's Court recently, here's a little something to whet your appetite for the goodies in store for you at Christmas. This takes the place of our usual news pages, but all new games news is good news as they say. So, what's in the offing?



Mirrorsoft

Despite promising other exciting releases such as Speedball 2, Mirrorsoft's assault on the Christmas market is based securely on the Teenage Mutant Hero Turtles blast, due out some time in November. Nobody is doubting that this one will have to be a number one seller, or thereabouts, purely because of the increasing hype and growing excitement around the Turtles film.

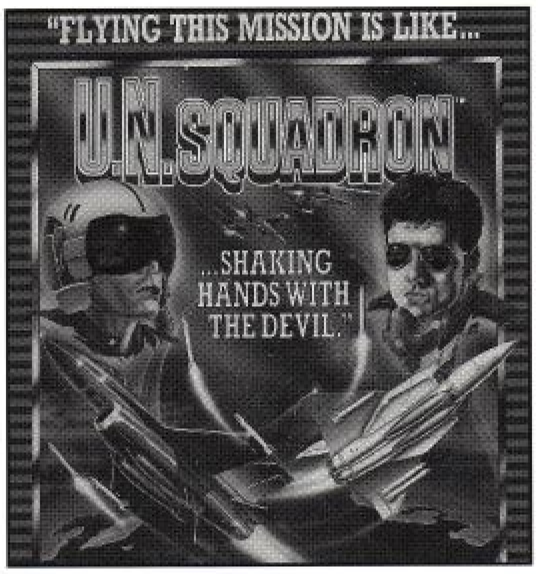
Quite apart from that, the game looks pretty neat as well.

Ocean

In reply to the Turtle menace, the Manchester Crew is basing its Christmas attack on a host of excellent film licences, including Robocop II, Total Recall and the chiller Nightbreed, based on Clive Barker's spooky Cabal novel. Other sure favourites will be Special Criminal Investigation, a sequel to last year's classic Chase HQ and some excellent new offerings from a totally revamped Hit Squad label, to cater for the growing budget market.

US Gold

The Birmingham boys and girls have also got a few goodies up their sleeves, not least of which is the long awaited



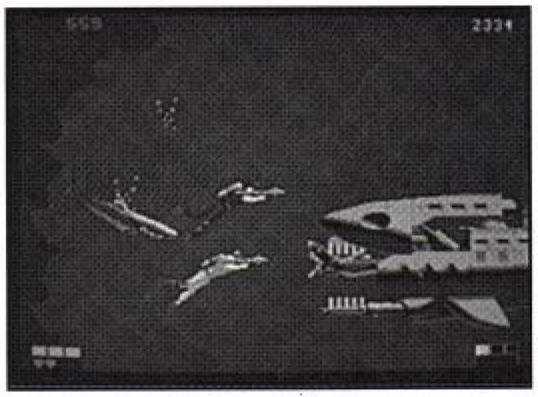
Snow Strike. Add to this the forthcoming jet fighter blast UN Squadron and you could say that the Goldies will be winging their way into the New Year.

Cyber City chaos rules in the mega shooty E-Swat, while Middle Eastern terrorist activities will keep you busy in Line of Fire, amongst other goodies coming up. For pure entertainment, keep your eyes peeled for the Platinum compilation of classic Capcom hits. Ghouls 'n' Ghosts, strider, Forgotten Worlds, Black Tiger, they're all there and should be with you in November with a free copy of LED Storm to boot.

Domark

Bond is back for Domark in The Spy Who Loved Me, but race fans will be delighted with Hard Drivin' II, a sequel to last year's smash, as they will be with STUN Runner, a high speed shoot-em-up of epic proportions.

You've read about Badlands in the Combat Zone, well now it's coming to the CPC in all its glory, as just one of several smash Tengen titles, including terrorist action in Hydra, swashbuckling adventure in Skull and Crossbones and the cybernetic sharks of Thunder Jaws. These are gonna be mean, so be patient.

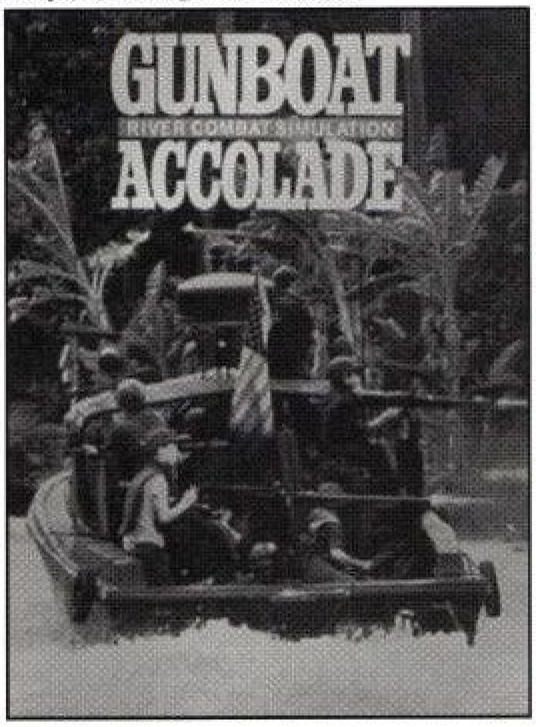


Virgin

A wacky and exciting line-up awaits us from Virgin, featuring the Monty Python classic and the infamous Judge Dredd. New York Warriors will have you and/or a friend taking on the dregs of a futuristic Big Apple, while Golden Axe sees you choosing one of three mighty adventurers in a horizontally scrolling epic of magic, potions and death.

The New Year looks set to be a good

one with the long awaited computer version of the wacky Viz comic, with all its crazy characters coming out to play on your computer screen.



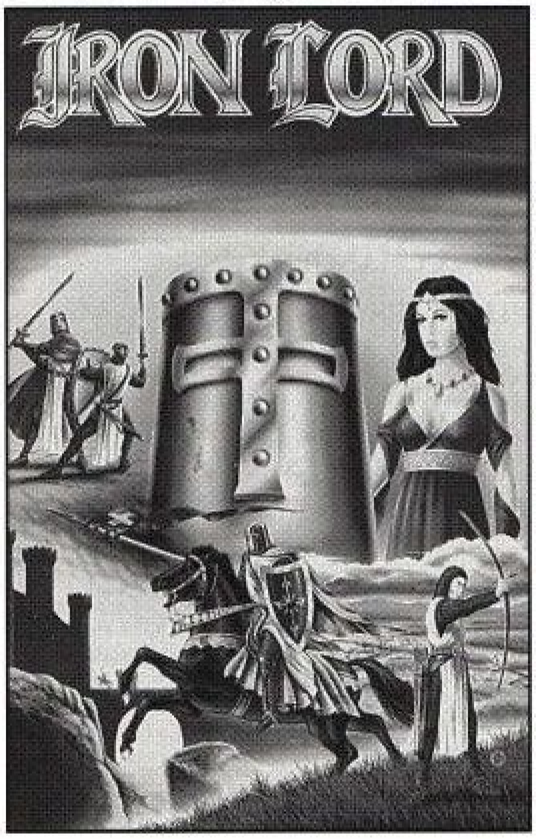
Accolade

Accolade's Christmas goody bag comes in the form of Grand Prix Circuit and a corking river combat simulation called Gunboat, set amidst the madness of the Vietnam war. Just before the festivities start, you can also get to grips with the classic flag chasing board game Stratego on your screens – guaranteed to keep you busy before the present opening rush.

Ubisoft

You've seen most of the reviews, but if you haven't got the games yet, make sure Iron Lord, Skate Wars, Twin World, Night Hunter and Puffy are on your Christmas list. They are all classics of the CPC screen and will keep you busy well into the cold, winter nights.

Well, there you have it, just a brief look at the goodies available for your Christmas stocking. If we've missed any out, it's purely because of lack of space, but you'd better believe that there's gonna be an awful lot to choose between when you get out to the computer shops. Choose wisely and you're going to have a lot of fun over the Festive season. Enjoy it!



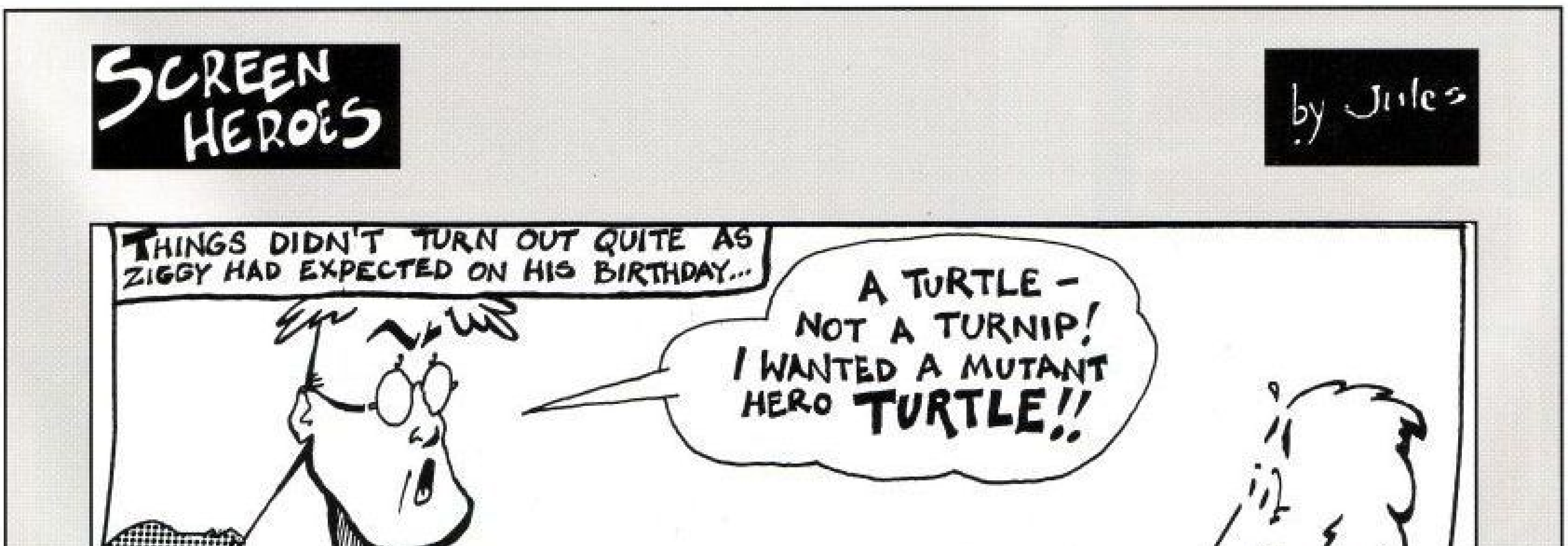
Super Crimefighters

Here it is, the one you've all been waiting for with baited breath! The result of the fantastic Crimefighters competition.

Without further ado, we'll put you out of your misery, so take a look through the following list and see if you've been lucky enough to take away one of the ten fabulous Judge Dredd Goodie Bags.

Hugh Kappen of West Denton, Newcastle Upon Tyne; Matthew McHaffie of Limarady, Londonderry, N. Ireland; Richard Ormson of Bury, Lancs; Gary Williams of Welshpool, Powys; J.M. Groves of Rock, Kidderminster, Worcs; Andrew Hillier of Gloucester; Nicolas Rouxel of Rennes, France; Simon Moran of Reading, Berks; Peter Johnston of Redcar, Cleveland and Tom Boylan of Wirksworth, Derbyshire.

There you have it. Ten lucky winners and, unfortunately, hundreds of unlucky non-winners. Sorry we couldn't give you all something, but keep trying, your turn is bound to come.



COMPETITION



Eyes down for a full house folks, it's time to win some more glorious ACU goodies, courtesy of those old softies at Electronic Zoo. There are 10 fabulous Subbuteo board and computer games up for grabs this month, and all you need to do to be in with a chance of grabbing one of each is to answer these incredibly simple sporting questions:

1. Which games company produces the board game Subbuteo?
2. Which two sportsmen captain the teams in TV's A Question of Sport?
3. Which famous stadium does Manchester United play at.

Right. The first ten correct answers pulled out of the bag will win the goodies, so tell us which format you want the computer game on and send your entries to us.

The editor's decision is final. Send your entries to:

Super Subbuteo
ACU,
MSM Ltd.,
116-120 Goswell Road,
London EC1V 7QD.

DOWNSTREAM



BY ROBIN GILBERT

Fun and games here as you race to swim your little fish down the river. Be careful, some of those banks are very close together and you wouldn't want to hurt little fishy now, would you?

```
1 KEY 0,"mode 2:list"+CHR$(13):KEY 7,"run"+CHR$(13) [9E]
10 CLEAR:MEMORY 19999:RESTORE:lines=6:g=20000:FOR now=1 TO lines:READ a$:FOR tha
t=1 TO LEN(a$) STEP 2:POKE g,VAL("&"+MID$(a$,that,2)):g=g+1:NEXT:NEXT [AE]
20 MODE 1:BORDER 0:PAPER 0:CLS:INK 0,0:INK 1,26:INK 2,10:INK 3,6:PLOT 0,0:DRAWR
0,399:DRAWR 639,0:DRAWR 0,-399:DRAWR -639,0:PLOT 4,4:DRAWR 0,391:DRAWR 476,0:DRA
WR 0,-391:DRAWR -476,0:PLOT 484,4:DRAWR 0,391:DRAWR 150,0:DRAWR 0,-391:DRAWR -15
0,0 [E2]
30 LOCATE 32,2:PRINT"SCORE":LOCATE 32,6:PRINT"TOP":LOCATE 34,21:PRINT"ROBIN":LOC
ATE 33,23:PRINT"GILBERT":LOCATE 32,11:PRINT STRING$(7,32):LOCATE 34,14:PRINT"DOW
N":LOCATE 34,15:PRINT"====":LOCATE 33,17:PRINT"STREAM":LOCATE 33,18:PRINT"======
":CALL 20000 [AF]
40 LOCATE 32,11:PEN 2:PRINT"AGAIN ?":i$=INKEY$:IF i$="y" OR i$="Y" THEN 30 ELSE
IF i$="n" OR i$="N" THEN NEW ELSE 40 [D9]
50 DATA CD2C50CD1A501A011C01170E020C0E001A00270018FF3E10325A503E06325C5021000022
5D50CD1A501F02020F03FFCD6D4F3A7050FE80380E3A6F50E603473A5C5090FE00200E3A6F50E603
473A5C5080FE1628E4325C50473ECFCD5ABB10FB3E02CD90BBCD6D4F3A7050E6033C3C3C326C5047
3E8FCD5ABB10FB [95]
60 DATA 3E03CD90BB3A5C50473A6C504F3E1C9190473ECFCD5ABB10FB3E08CD1EBBC4574F3E01CD
1EBBC4624F06003E002601161D2E011E17CD50BCCD1A501F2004FF2A5D5023225D50E5CDC44FE1ED
5B5F50B7ED5238062A5D50225F50CD1A501F2008FF2A5F50CDC44F3A5A50672E18CD75BBCD60BBFE
CF282C3A5A5067 [2F]
70 DATA 2E18CD75BBCD1A500F000E02FD0E00FF3E08CD1EBBC4574F3E01CD1EBBC4624F3E42CD1E
BBCA464ECD2C50CD1A501F0A0B0F012047414D4520204F56455220FFC93A5A50FE02C83D325A50C9
3A5A50FE1CC83C325A50C9D5C5E5ED5B6D50ED4B6F502E02CDAD4F2E01CDAD4F2E03CDAD4F2E01CD
AD4F2E01CDAD4F [C1]
80 DATA 2E02CDAD4F2E01CDAD4F2E05CDAD4F11894E01F364CDB54FE1C1D1C9AFCB13CB122D20F8
2A6D5019226D502A6F5009226F50C90E05226B502161503E013259505E235623E506002A6B50E600
ED5238030418F719226B503A5950FE00280578FE00280D78C630CD5ABB3E003259501805 3E20CD5A
BBE10D2803C3D1 [04]
90 DATA 4F3A5950FE01C0CD1A50082DFFC9DDE1DD7E00DD23FEFF2805CD5ABB18F2DDE93E012171
50CDBCBC217850CDAABC218150CDAABC218A50CDAABC219350CDAABC219C50CDAABC21A550CDAABC
C9000000000000064001027E80364000A00010000005A5AA5A50204010304FF020101005000000D14
0001010047 0000 [82]
100 DATA D1400010100540000 0D14000101005F00000D140001010043000 00D14000101003F000C
0D1400 [41]
```

UP THE LADDER

BY ROBIN GILBERT

A neat little strategy game for two players this. Pick the number of rungs you want to use, then put your initials on them using the on screen prompts. The object is to make sure your initial appears at the top, so count wisely and calculate your way to the top.

```
10 MODE 1:INK 0,6:INK 1,26:INK 2,0:INK 3,15:GRAPHICS PEN 3:BORDER 6:PAPER 0 [EB]
20 PEN 1:CLS:INPUT "Select No. of rungs (10-24) :",r:ir=INT(r):IF r<10 OR r>24 T
HEN 20 ELSE PRINT:INPUT"Player 1, enter initials :",p$(1):p$(1)=MID$(p$(1),1,2)
[51]
30 PRINT:INPUT"Player 2, enter initials :",p$(2):p$(2)=MID$(p$(2),1,2):CLS:MOVE
24,0:DRAWR 0,16*r+16:DRAWR 8,0:DRAWR 0,-(16*r+16):DRAWR -8,0:MOVE 96,0:DRAWR 0,1
6*r+16:DRAWR 8,0:DRAWR 0,-(16*r+16):DRAWR -8,0:p=1:y=24:ru=0 [B0]
40 FOR f=16 TO r*16 STEP 16:MOVE 32,f-1:DRAWR 64,0:DRAWR 0,2:DRAWR -64,0:NEXT [3
E]
50 PEN p:PRINT CHR$(22);CHR$(0);:LOCATE 12,2:PRINT"Player ";p;" ( ";p$(p);" ) tc
 move.":LOCATE 10,4:INPUT"No. of moves (1-3) ?",m:IF m<1 OR m>3 THEN PRINT CHR$(
7);:GOTO 50 [D9]
60 PRINT CHR$(22);CHR$(1);:FOR f=1 TO m:LOCATE 4,y:PRINT UPPER$(p$(p)):y=y-1:ru=
ru+1:IF ru=r THEN 80 ELSE NEXT [A2]
70 p=p+1:IF p=3 THEN p=1:GOTO 50 ELSE 50 [7D]
80 LOCATE 20,10:PRINT"WINNER":LOCATE 17,16:PEN 3:PRINT"Play again ?":i$=INKEY$:I
F i$="y" THEN RUN ELSE IF i$<>"n" THEN 80 ELSE PEN 1:MODE 2:LIST [20]
```

NUMBER SERIES

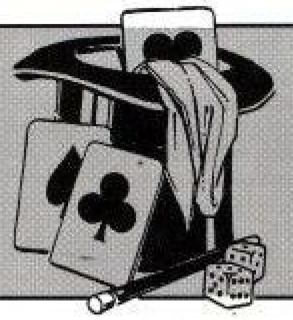
BY MATHHEW PINDER

This is a good one to help you with your favourite subject – Maths! The computer will display a series of four numbers and all you need to do is type in the next one. Keep a tally of your score and a summary is given after 15 questions.

```
10 MODE 1:q=0:sc=0:LOCATE 14,1:PRINT"NUMBER SERIES":LOCATE 14,2:PRINT"**********
***"
20 IF q=15 THEN LOCATE 1,25:PRINT SPACE$(39):LOCATE 1,7:PRINT"You scored";sc;"ou
t if 15 questions":LOCATE 1,12:PRINT"Press <SPACE> f
or more questions":WHILE INKEY$<>" ":WEND:GOTO 10
30 q=q+1:GOSUB 80:t1=INT(RND*30)+10:r=INT(RND*20)+2:g=INT(RND*2):t2=t1+r:t3=t1+(
2*r):t4=t1+(3*r):t5=t1+(4*r):LOCATE 1,7:PRINT"Sequen
ce is:-":GOSUB 100
40 IF g=0 THEN 50 ELSE LOCATE 10,12:PRINT t1:GOSUB 100:LOCATE 16,12:PRINT t2:GOS
UB 100:LOCATE 22,12:PRINT t3:GOSUB 100:LOCATE 28,12:
PRINT t4:LOCATE 1,18:INPUT"Next term is";ans:IF ans=t5 THEN 90 ELSE 60
50 LOCATE 10,12:PRINT t5:GOSUB 100:LOCATE 16,12:PRINT t4:GOSUB 100:LOCATE 22,12:
PRINT t3:GOSUB 100:LOCATE 28,12:PRINT t2:LOCATE 1,18
:INPUT"Next term is";ans:IF ans=t1 THEN 90
60 IF g=1 THEN p=t5 ELSE p=t1
70 FOR w=100 TO 1000 STEP 10:SOUND 1,w,4,7,1:NEXT w:GOSUB 80:LOCATE 8,12:PRINT"W
rong - the answer was";p:FOR z=1 TO 2400:NEXT z:GOTO
 20
80 LOCATE 1,7:PRINT SPACE$(20):LOCATE 1,12:PRINT SPACE$(38):LOCATE 1,18:PRINT SP
ACE$(30):LOCATE 1,25:PRINT"Score";sc:LOCATE 20,25:PR
INT"Question";q:RETURN
90 sc=sc+1:FOR w=1000 TO 1 STEP -10:SOUND 1,w,4,7,1:NEXT w:LOCATE 1,7:GOSUB 80:L
OCATE 16,12:PRINT"Well done":GOSUB 100:GOTO 20
100 FOR z=1 TO 1100:NEXT z:RETURN
```

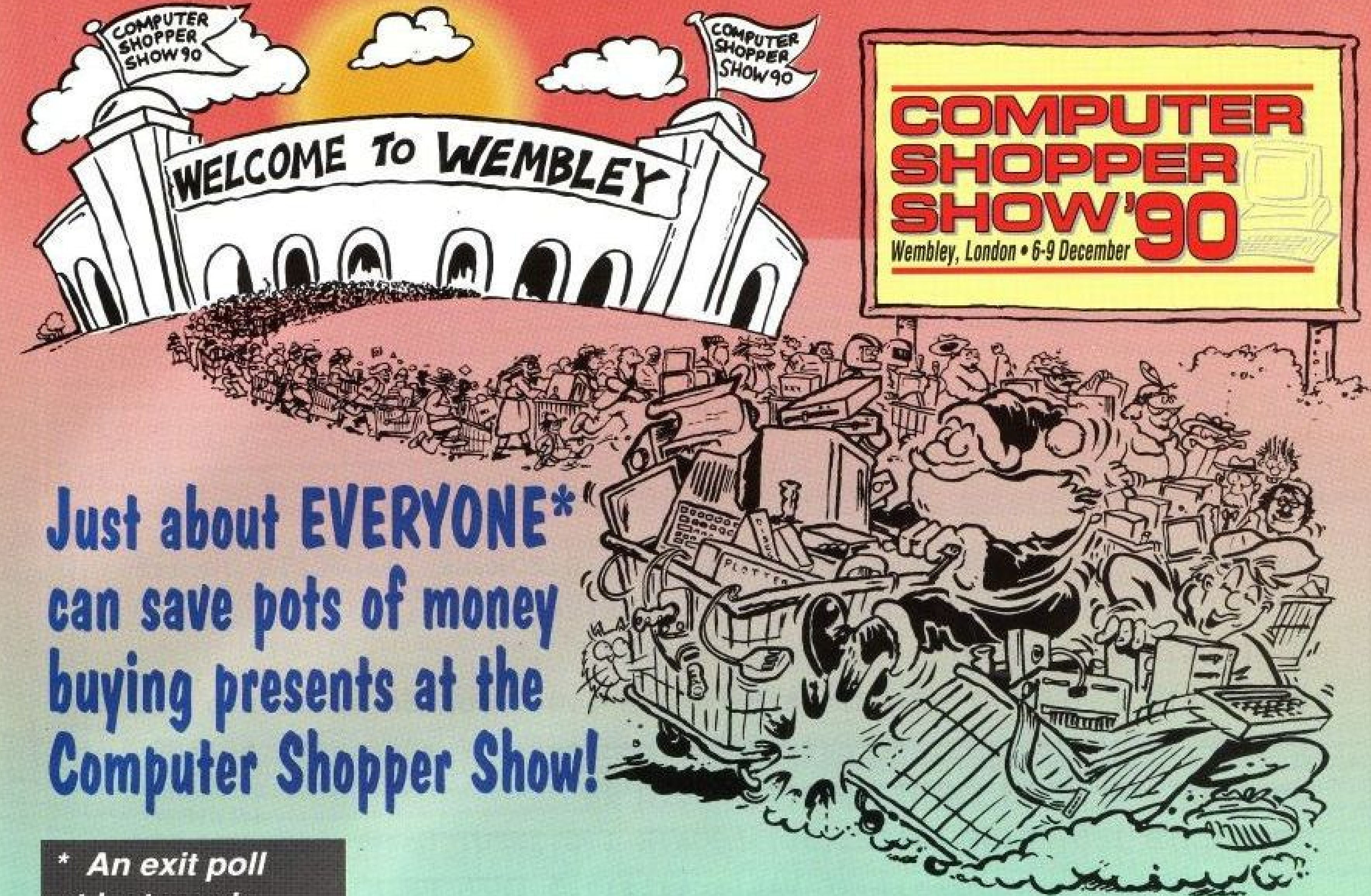
MERLIN

BY DAVID HALL



Just like the electronic game of the same name, use the cursor keys to imitate the flashing colours on the screen in sequence. It's easy to start off with, but it'll have you reeling as you reach the higher scores.

```
10 DIM k(5000):FOR t=1 TO 4:READ h(t),p(t):NEXT:INK 5,15:INK 0,0:BORDER 0:FOR t=
12 TO 15:INK t,p(t-11):NEXT:MODE 0:PAPER 0:CLS:x=8:y=8:a=60:b=624:c=4:d=3:e=5:GO
SUB 90:y=74:a=320:c=2:d=6:e=10:GOSUB 90:x=72:y=96:a=280:b=504:c=6:d=2:e=0:GOSUB
90 [2D]
20 x=450:y=240:PLOT 96,120:FOR t=1 TO 50:DRAWR x,0,13:DRAWR 0,y,15:DRAWR -x,0,12
:DRAWR 0,-y,14:MOVER 4,2:x=x-8:y=y-4:NEXT:PAPER 5:PEN 8:FOR t=22 TO 24:LOCATE 2,
t:PRINT CHR$(227)TAB(19)CHR$(227):NEXT:PEN 3:LOCATE 4,22:PRINT "+++ Merlin +++"
[84]
30 PLOT 86,120,0:FOR t=1 TO 8:DRAWR 464,248:MOVER -464,-250:NEXT:PLOT 558,120:FO
R t=1 TO 8:DRAWR -464,248:MOVER 464,-250:NEXT [9F]
40 FOR t=1 TO 2:k(t)=INT(RND(1)*4)+8:NEXT:f=2:PEN 9:LOCATE 3,23:PRINT "Press 'SP
ACE' to":LOCATE 3,24:PRINT "    begin...    ":WHILE INKEY$<>"":WEND:WHILE INKEY$
<>" ":WEND [6B]
50 PEN 9:LOCATE 3,23:PRINT "   Watch VERY   ":LOCATE 5,24:PRINT " carefully!  ":
f=f+1:k(f)=INT(RND(1)*4)+8:FOR g=1 TO f:INK k(g)+4,h(k(g)-7):SOUND 1,20+20*k(g),
10,15:SOUND 2,22+20*k(g),10,15:FOR i=1 TO 200:NEXT:INK k(g)+4,p(k(g)-7):FOR i=1
TO 300:NEXT [2A]
60 NEXT:LOCATE 4,23:PRINT "IT'S YOUR TURN":LOCATE 3,24:PRINT "use cursor keys.":
WHILE INKEY$<>"":WEND [F2]
70 FOR g=1 TO f:i$="":WHILE i$="":i$=INKEY$:WEND:IF i$<>CHR$(232+k(g)) THEN 100
ELSE INK k(g)+4,h(k(g)-7):SOUND 1,20+20*k(g),10,15:SOUND 2,22+20*k(g),10,15:FOR
i=1 TO 200:NEXT:INK k(g)+4,p(k(g)-7):NEXT [5E]
80 SOUND 1,100,10,15:SOUND 1,130,10,15:SOUND 1,70,10,15:SOUND 1,100,10,15:LOCATE
 3,23:PEN 4:PRINT "   WELL DONE!   ":LOCATE 3,24:PRINT SPACE$(16):LOCATE 3,24:PE
N 9:PRINT "  Try:- ";f+1:FOR t=1 TO 2000:NEXT:GOTO 50 [A9]
90 PLOT x,y:FOR t=1 TO 2:DRAWR 0,a,c:DRAWR b,0:DRAWR 0,-a,d:DRAWR -b,0:MOVER -4,
2:NEXT:MOVER 12,0:FOR t=1 TO (a/2)-2:DRAWR b-12,0,e:MOVER -b+12,2:NEXT:RETURN:DA
TA 6,3,2,1,24,12,7,4 [2B]
100 PEN 1:SOUND 1,2000,220,15:SOUND 2,1900,220,15:LOCATE 4,23:PRINT "  WRONG! Yo
u  ":LOCATE 3,24:PRINT "got";f-1;TAB(13);"right!":FOR t=1 TO 5000:NEXT:SOUND 1,1
0,10,15:GOTO 40 [76]
```



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TRANSFER

BY JACK WHITELEY

Something serious here. This program will enable you to transfer any type of file in any user area from 3.5" to 3" disc or vice versa using KDS ROMDOS. The UTOPIA (ICAT) command is used here, so if that is not available, replace line 60 with the twolines at the bottom of the program. To work this utility, you'll need a 3" disc formatted as SYSTEM. Then ensure the following files in USER 0 are set to SYSTEM and READ ONLY using CPM+ SET.COM utility: C10CPM3:EMS with patch for RAMDOS/ROMDOS from KDS, ERASE. COM SET.COM PIP.COM SUBMIT.COM AMSDOS.COM PROFILE.SUB PROGRAM 1 saved as "disc".PROFILE.SUB contains the line "SUBMIT COPY.SUB". Got it? right, away you go!

```
10 MODE 2:CLS:DEFINT a-z:INK 0,13:INK 1,0:BORDER 10:LOCATE 30,1:PRINT"FILE COPIER 3.5";CHR$(34);" ";CHR$(242);CHR$(243)" 3";CHR$(34):LOCATE 30,2:PRINT"   by Jack Whiteley   "
20 LOCATE 1,4:PRINT SPACE$(50);:LOCATE 1,4:INPUT"Enter source disc [A/B] :- ",source$:source$=UPPER$(source$):IF source$<>"A" AND source$<>"B" THEN PRINT CHR$(7): GOTO 20
30 LOCATE 1,5:PRINT SPACE$(50):LOCATE 1,5:INPUT"Enter source user area [0-15] :- ",area1$:IF VAL(area1$)>15 THEN PRINT CHR$(7):GOTO 30
40 IF source$="A" THEN dest$="B" ELSE dest$="A"
50 LOCATE 1,6:PRINT"Destination disc :- ";dest$:LOCATE 1,7:PRINT SPACE$(50);:LOCATE 1,7:INPUT"Enter destination user area [0-15] :- ",area2$:IF VAL(area2$)>15 THEN PRINT CHR$(7):GOTO 50
60 |USER,VAL(area1$):|CAT,ASC(source$)-65:INPUT "Filespec [Wildcards permitted] :- ",file$
70  LOCATE 1,24:PRINT SPACE$(50):LOCATE 1,24:PRINT"MOVE or COPY [M/C]":LOCATE 1,25:PRINT"Note:- Move = Copy and Erase":LOCATE 20,24:INPUT fmode$:fmode$=UPPER$(fmode$):IF fmode$<>"M" AND fmode$<>"C" THEN PRINT CHR$(7):GOTO 70
80 |A:|USER,0:OPENOUT"copy.sub":PRINT#9,"set copy.sub[dir]":PRINT#9,"pip ";dest$;":[g";area2$;"]=";source$;":";file$;"[g"+area1$+"]"
90 IF fMODE$="M" THEN PRINT#9,source$;area1$;":":PRINT#9,"era ";file$:PRINT#9,"a0:"
100 PRINT#9,"set a:copy.sub[sys]":PRINT#9,"amsdos":CLOSEOUT:|ERA,copy.bak:|CPM
```

<u>MODIFICATIONS FOR "NON-UTOPIA" USERS</u>

```
60 |USER,VAL(area1$):IF SOURCE$="A" THEN CAT ELSE |B:CAT
65 INPUT "Filespec [Wildcards are permitted] :- ",file$
```

MUSIC



BY SHABAZ YOUSAF

Listen to some sweet melodies while you program. This handy program plays a tune under interrupt, enabling you to get on with something else while you bop along to the sounds. Neat.

```
10 CLS:PRINT "Please wait...":a=30000:FOR j=1 TO 7:READ a$:FOR i=1 TO 240 STEP 2
:POKE a,VAL("&"+MID$(a$,i,2)):a=a+1:NEXT i,j:ENV 1,15,-1,1:ENT 3,5,-1,1,5,1,1:a$
=STRING$(40,".")+"MUSIC by Shabaz Yousaf......I "+CHR$(228)+" Auntie John"
20 a$=a$+"........Press ESCAPE for a pleasant surprise............Sarvi is fat.
.....Praise be to AY-3-8912"+STRING$(40,"."):CALL 30000:MODE 1:WHILE 1:FOR i=1 T
O LEN(a$)-40:LOCATE 1,11:PRINT MID$(a$,i,40):NEXT:WEND ' Type RUN 100 to check D
ATA.
30 DATA 21447506811150753e00324e75000000cde0bcc9000055007f000000000000f5c53a4e
753c324e75fe542803c1f1c93e00324e75181a8101010000000f1c8202020000000f1c8403030000
000f1cd475d5e5216775ed4b7f750a326a7503ed437f75cdaabc216f75ed4b7f750a32727503ed43
7f75cdaa
40 DATA bc217775ed4b7f750a327a7503ed437f75cdaabc217775ed4b7f750afeff200701d475ed
437f75e1d1c1f1c99f9f9f8e8e8e7f7f7f773c775050502f2f2f3c3c3c0000007777777f7f7f8e8e
8e9f3c9f5050502f2f2f3c3c3c0000009f9f9f8e8e8e8686867f357f8650867f2d7f8e358e7f7f7f
8e8e8e9f
50 DATA 9f9fa9a9a9b335b35050502d2d2d3535350000009f9f9f8e8e8e7f7f7f772f7747474728
28282f2f2f0000007777777f7f7f8e8e8e9f359f5050502d2d2d3535350000008e8e8e7f7f7f772f
777f477f7728777f2f7f6a6a6a7777777f7f7f8e8e8e9f359f9650968e2d8e8635867f7f7f8e8ebe
9f9fb3be
60 DATA be9f8e8e8e9f9f9fbebebebebebebebebe8e8e8e8e9f9fbebebebe8e8e8e9f9f9fbebebebe
bebebebe8e8e8e8e7f7f7f777f776a6a6a7777778e8e8e6a6a6a77776a8e8e8e6a6a8e7777778e8e
6a6a6a6a8e8e8e777777777776a7f7f7777777f6a6a8e64649f8e8e8e6a6a868e8e8e64647f868686
6a6a7f8e
70 DATA 8e8e5f5f776464646a6a6a7777597777598e8e597f7f5f77775f6a6a647777776a6a6a77
77776a6a777777777f6a7f7171715f5f5f6a6a6a7f7f7f9f9fbe9f9fbe8e8ebe9f9fb3bebe9f8e8e
8e9f9f9fbebebebebebebebebe8e8e8e8e9f9fbebebebe8e8e8e777777bebebe6a6a6a6a6a8e5f5f5f
6a6abe77
80 DATA 77776a6a6a7777778e8e8e8e8e8e8e8e6a6a6a6a77778e7f8e7f6a647764646 49f9f9f5f
5f5f5f5f777f7f7f64648e5f5f9f5959b371717159599f777777759599f5f5f5f868686 6a6a6a6a6a
7f6a6a6a717171777777 6a6a6a5f5f5f6a6a6a7171716a6a6a5f5fbe7f7f7f5f5fc97f7f7f5f5fb3
6a6a6a9f
90 DATA 9f9f7777777777 8e7777597777 5f7777777777 8e8e8ebe9f9fb3bebe9f77778e773c8eff
ff000000000000000000000000000000000000000000000000000000000000000000000000000000
00000000000000000000000000000000000000000000000000000000000000000000000000000000
00000000
100 l=30:RESTORE 100:FOR i=1 TO 7:READ c$:c(i)=VAL("&"+c$):NEXT:RESTORE:FOR j=1
TO 7:c=0:READ a$:FOR i=1 TO 240 STEP 2:c=c+VAL("&"+MID$(a$,i,2)):NEXT:d=c-c(j):W
HILE d<>0:PRINT"Error line";l:d=0:WEND:l=l+10:NEXT:DATA 265c,34fc,300f,416d,3ebd
,36eb,1435
```

MIXER



BY ALLAN ADAMS

Do you ever get stuck over what colour paper to use for your next demo? Try this little number which will show you every conceivable mix of paper colours, then decide which one you fancy.

```
10 'Paper colour mixer.
20 BORDER 0:INK 0,0:INK 1,1:INK 2,2:INK 3,0
30 MODE 1:PEN 1
40 PAPER 2:FOR a=3 TO 7:LOCATE 1,a:PRINT STRING$(40,207);:NEXT
50 FOR c=1 TO 26:INK 1,c
60 FOR b=2 TO 26:INK 2,b:PAPER 2:IF c=b THEN GOTO 90
70 LOCATE 20,1:PAPER 1:PRINT STRING$(5," "):LOCATE 25,1:PAPER 3:PRINT "colour";c
;"mixed=":PAPER 2
80 LOCATE 1,1:PRINT STRING$(5," "):LOCATE 6,1:PAPER 3:PRINT "colour";b;"and":PAP
ER 2
90 NEXT:NEXT:MODE 1:INK 0,0:INK 3,24:PEN 3
```

COMBAT ZONE



Combat Zone comes from 5,000 feet this month as John Cook takes a close look at a new helicopter simulation from Taito, plus all the latest arcade news.

What with the increasing complexity of home consoles – not only the excellent new Amstrad console, but others such as Sega's MegaDrive and SNK's Neo Geo – the arcade manufacturers are wracking their collective brains to try and think of new things to do in the arcades. After all, why should anyone travel all the way to an arcade and pay for the pleasure of blasting a few aliens, when they can stay in their own home and do almost the same thing?

There are two strategies the manufacturers have adopted. Firstly, they are trying to make the machines give you more physical feedback from the game. The most dramatic example of this is a unit that was on display in Japan recently, the Sega 360.

What happens here is that you are strapped into a sit-in unit very firmly and start for play G-Loc (an air combat game reviewed in these very pages a few issues ago). And what happens when the dogfight makes you do a loop-the-loop? The unit turns you upside down in synchrony with your movements on screen! As soon as this unit makes an appearance in the UK, we'll have the full details - but try making a console do that! On the other hand, there are easier ways to lose your lunch!

Secondly, the game-makers can try to invent games that rely less and less on the conventional "joystick and two fire buttons" approach, and that's what Taito has done with its latest game Air Inferno – a rescue helicopter simulator all done in filled 3-D polygons – like Carrier Command was on home computer, say.



Now Taito has been into this 3-D simulator stuff for quite some time. Their last game they did using this technique was called Top Landing, and had you piloting a commercial jet liner into land. Does that sound like a bunch of fun? Well, to my mind, frankly no - but it does seem to have had a strange fascination for a number of punters, judging by the way I've seen it pop up around the country recently.

If you were put off by the slow 3-D and the lack of action in Top Landing, then Air Inferno might change your mind about 'realistic' simulators, as it is highly challenging and entertaining.

It's the controls that make the game what it is– and are of a type you could not easily emulate on home console, or computer for that matter.

Sure, there is a familiar joystick found in the centre of the sit-in unit. Forward/Back will move your 'copter, yes, forwards and backwards – but move it Left/Right and you will find yourself tilting left/right in a rather unstable manner. No, to rotate left/right – which is what you must do to be able to use the helicopter as a rescue platform, you have to use the two foot pedals on either side of the stick.

The throttle, that makes you increase/decrease altitude is a handle on the left hand side of the unit, by the side of the seat.

All this sounds a bit complex — and so to help you get the the hang of things, Taito has provided a couple of practice missions you can select, in order to get you used to the controls.

Once you've had a couple of tries of these and feel you have the measure of the machine, it's off to the real challenges – the rescues. There are four in total, and you have to complete them in order – and of course they get progressively harder.

Each rescue has to be completed against a strict time limit and the rules are simple. Run out of time and it's game over! Unfortunately, if you complete a mission, the extra time is not added on to the allotted time at the beginning of the next.

The first has you putting out the fire on a tanker. This is easy. You speed ahead to the scene, guided by a scanner that runs along the top of the display and a digitised voice. You stop, hover above the flames and activate a fire extinguisher fitted to the 'chopper. Assuming you've learnt the fine art of hovering, after a few seconds concerted spray, the fire goes out. All you have to do now is land on the helipad on the ship. This is not so easy!

To aid you a little, you can pull up a screen that shows you the view from the bottom of your 'chopper, looking downwards – but, as it happens, after a while you'll find it more of a hindrance than a help. Just use the instinct you'll develop after playing the game a few times.

I guess that it the true genius of this game. The controls are so realistic and the filled 3-D so atmospheric, you really do feel like you are piloting a helicopter. Except it's not as noisy!

If you land within the time limit, you get points modifiers depending on how good your landing was and how well you flew during the mission.

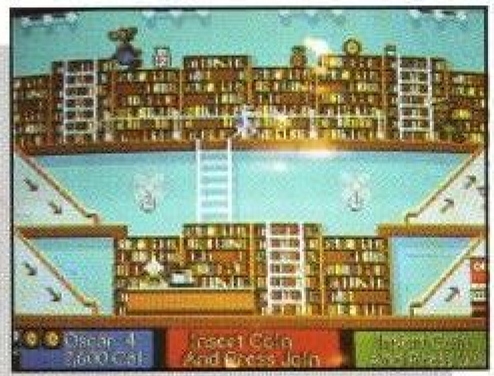
the second mission is a little harder, but not much. You have a Towering Inferno to deal with, then onto the roof of the skyscraper to land. OK, but then comes the volcano rescue. Here you fly into a valley that is the path of an oncoming lava stream - and all you have to do is land on a building to take victims away.

Trouble is, you get randomly hit by volcanic rocks and there's a gusty gale blowing, making landing almost impossible. After the first couple of milk runs, this one is very difficult indeed. And if you manage to do that (yes, I did after some considerable investment) the desert rescue has you picking up someone lost in the dunes, in the middle of a sandstorm that screws up all your instruments. I'm still working on that one.

Altogether a fascinating challenge, I highly rate Air Inferno for anyone looking for an intelligent alternative to your average blast 'em - and if there are any helicopter pilots out there, please find a unit, have a go and write and tell me how it compares to the real thing!



My other fave this month has been a jumpy-jumpy game called Hammerin Harry. From a Japanese company called Irem - more famous for games like R-Type - it's a horizontal scrolling arcade game with some real touches of humour, as well as vast amounts of playability. Definitely one to look out for in the arcades in the next month or



so and a definite for conversion onto home format.

One that won't make it is Pig Out from the Leyland Corp. Leyland has just got one of its games onto home computer via Virgin, Off Road Racer. That was, shall we say, Super Sprint with bumps.

Now they've tried something "original" and it really is a bit dull. The action takes place on single screens, with you controlling a pig that gets points for eating food, and can collect objects to throw at the opposition (other pigs, wolves, etc). The screen ends when you collect numbered pots of jam in sequence.

The sprites are small, playability seems low and the collective opinion was that Pig Out was more like a Rip Off. Come on Leyland, we know you can do better!

Lastly, I'm sure that you hardened headbangers out there will remember a game called Hellfire by Toaplan. Wildly fast and playable, it was a Nemesis clone. Now they've brought their talents to bear on the Ikari Warriors style of game, to produce the excellent Out Zone.

Billions of power-ups, vast numbers of opposition and a world allocation of sprites - with everthing travelling at the speed of sound. For a quick adrenalin fix - this game's your baby!

That's it for this month - next time we'll be taking a look at the big preview show of the Autumn to see what'll be turning up in the arcades next year.

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Sleeping Giant

Professional Journo Vic Barnes, better known for his motorcycle reviews, takes Peter Brunning's Info-Script on a very successful test drive.

The trouble with most software is that when you buy it you are unaware of just what you can achieve, or create, with it. Certainly, you can write letters with a word processor and store a list of names and addresses using a database. Unfortunately, you have to learn software thoroughly becore you realise that, by exploiting particular and sometimes unique features, the program will carry out tasks you never imagined possible.

One program exclusive to the CPC is Brunword Elite. I bought it because I am a self-employed photo-journalist and hoped its unique page-layout routines and high-quality fonts would enable me to produce professional looking newsletters and eye-catching promotional material. I wasn't disappointed. Brunword did all of these things – and more. It even prints my disc and audio cassette labels!

An added bonus is Info-Script, which was included as part of the Elite 'package'. I stored the names and addresses of members of the jounralist's guild, of which I am secretary. Eventually I used the simple mail-merge feature to import this basic information into standard letters. But it wasn't a real database, was it? I mean it was just... THERE! It was a subsiduary part of Elite – the blue-riband of the Brunword suite – and it was a simple, though basic, database.

For nine months I never realised I had a sleeping-giant in my computer! I hadn't bothered to try and learn the program completely, because I had already formed an opinion – based on the misconception – that you never get "something for nothing'. After all, a good database for an IBM clone costs twice as much as the entire Brunword package, never mind Info-Script!

The trouble with Peter Brunning is that he is a genius. What is obvious to him is about as simple as Einstein's Theory of Relativity to us. In common with other programmers, who write their own software manuals, he tells us how to use a particular feature of his program without explaining what it can be used for. It isn't always obvious that (for example) the marker system of Info-Script is a great way of segmenting one large file so that you can temporarily split it into as many as four different 'files'. This has unique applications if you run a club and wish to divide the membership into groups who pay annually, quarterly, monthly or are honorary members. Instead of maintaining four separate files you keep one large one and divide it only when you need to. With this system you can split the membership into geographical areas, or those who have paid their subs and those who haven't. This is a very powerful feature and its possibilities are endless. Surprisingly, by running through the example detailed in the manual, it is very simple to use.

All databases should be relational. Not only does this economise on



memory, but once mastered, saves an awful lot of keyboard time. In its simplest form the title of an album could be designated as the parent and the individual tracks would be the children. They are linked with a symbol (or short code) and this is typed-in after listing each album track. The child then runs off and finds its parent!

The Info-Script method is more comprehensive than most, and far more



versatile. The majority of databases use only the parent and child combination, as in the 'album' example above, and this works quite well. Info-Script however, allows the use of parents, sons AND daughters. The advantage here is that if you are keeping a file of your record collection, the artist would be the parent and individual album titles are the sons. Titles of tracks on the albums would then be daughters, although this might depened on the way you wished to access information.

On a more serious level, relational databases are perfect for stock control where retailers need to record supplies of stock from wholesalers, or distributors, and detail customers who buy it. Unfortunately, this facility is useless if the program does not support a full range of arithmetical functions. Practically all databases for the CPC only allow simple addition and (if you're lucky) subtraction. Info-Script's versatility enables the user to calculate discounts and VAT, as well as all the usual totals and sub totals. Taking this a stage further, it is easy to see that a small business could even keep its VAT and Income Tax records using the program!

From a personal point of view I find the flexibility of layout one of the program's most useful features. Any item of data from a file can be positioned at any point on a sheet of paper. This may be printed in a typecase supported by the printer (either 9-pin, or 24-pin – or in any of Elite's top-quality fonts. It can be boxed, laid-out in columns, printed double-height, or width, underlined, condensed, italicised, outlined, or shadowed... or any combination of these!

Naturally, not everyone wants to print their own version of the Independent. If you simply require a basic, quick print-out of selected (or all) data in your files, then the program allows this. All you have to do is hit a couple of keys.

Info-Script's incredible flexibility comes from exploiting a number of its own features in conjunction with those of Elite, plus the use of a simple mail-merge feature which requires just three key presses. It will even load a pre-written, standard letter which has already been filed on disc. The program's versatility is achieved by employing a series of easty-to-use, single-letter, mail-merge codes prefixed by the ampersand (&) sign. This is recognised by the program as a mail-merge instruction, but still allows you to use the ampersand as part of normal text!

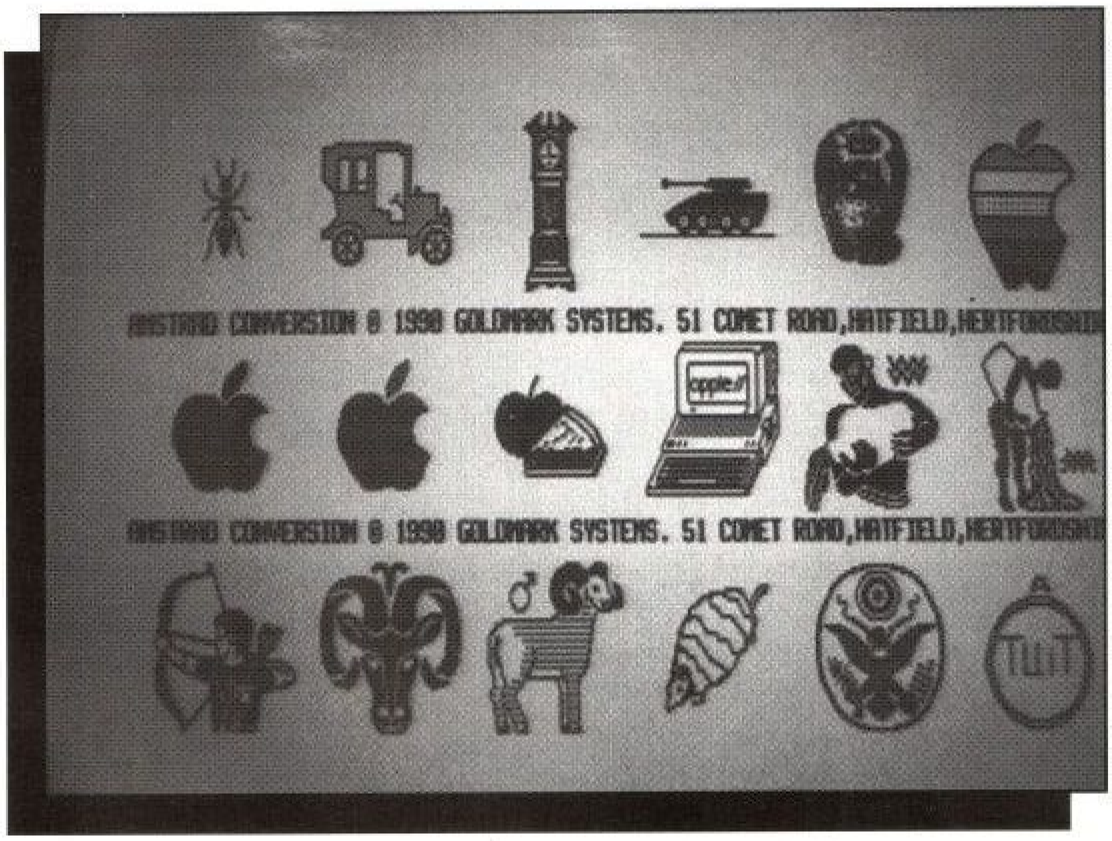
I still haven't conquered Info-Script, but I am winning. It isn't difficult to learn, but it does take effort to master it. Mind you, I personally think that what effort is expended is more than recouped at a later date.

When the Lilliputians finally wakened Gulliver, he saved their land!



Graphics Galore

Clip Art for all occasions. John Taylor delves into the latest offering from Goldmark Systems.



There are times in your life when the old dull-cloloured letter paper just won't do. What about the time you wanted to impress your friends with some novelty business cards? They just didn't look right without that catchy logo did they?

More importantly, what about that club fanzine you're writing? You know, the one you wanted to look really zappy with lots of pics to break up the boring minutes of the last meeting.

Life without clip art can be exceedingly drab and, faced with the prospect of having to design a new piece of artwork on your computer every time to want to illustrate something, it can be enough to put you off publishing for pleasure for good.

Thankfully, however, Goldmark Systems has now come up with something which Goldmark's own Brian Barker describes as: " As far as the CPC is concerned, we think it is the best thing since sliced bread!"

Well, try sticking a piece of soggy bread onto your notepaper and the result may be a little disappointing. Get hold of Golmark's new selection of Clip-Art however, and you'll see that Brian's claim is not very far at all from the truth.

The Goldmark series runs to an incredible 37 different graphic libraries, every one containing over 50 separate pieces of clip-art for you to use with whatever utility you feel like.

Goldmark has once and for all smashed that age old problem of plenty of program but no graphics samples and produced what must be the ultimate in terms of variety and quality.

Lettering, symbols, signs, animals, people, vehicles, you name it, it's all here and all you need to do to get hold of it, is to get hold of a catalogue, select which pieces you want and you're away.

To assemble this daunting selection of artwork, Goldmark has been scouring public domain libraries the length and breadth of the Country, as a result of which, the actual clip art won't cost you a single penny.

What Goldmark will charge for, and quite understandably so, is the cost of a disk, duplication, labour involved in duplicating and conversion and good old postage and packaging.

What does all of that add up to?

For just £12.00 in the UK, you get a whole library of 56 pieces of clip art. To help you save money and make the most from your purchase, each library is stored in compressed form, allowing up to eight libraries to be stored on one disk and for every additional library you want on that same disk, the charge is just £10.

If you are worried about getting the artwork out of this compressed form and into the usual CPC 17K screen, don't. All you need to do is have a ready formatted disk with about 70K free to hand, then press COPY at the screen you require and follow on the screen prompts for speedy results.

All in all, this little package should prove a godsend for serious CPC users and for the price, Goldmark should expect their mailbags to be swamped for months to come.

For the full catalogue, just send £1.25 to Goldmark Systems and then sit back and luxuriate as you choose your favourite pieces.If Goldmark don't sell out of this little beauty very, very quickly, I for one (and the rest of the ACU team – Ed.) Will want to know why. For sheer size and quality, there's nothing to touch it.

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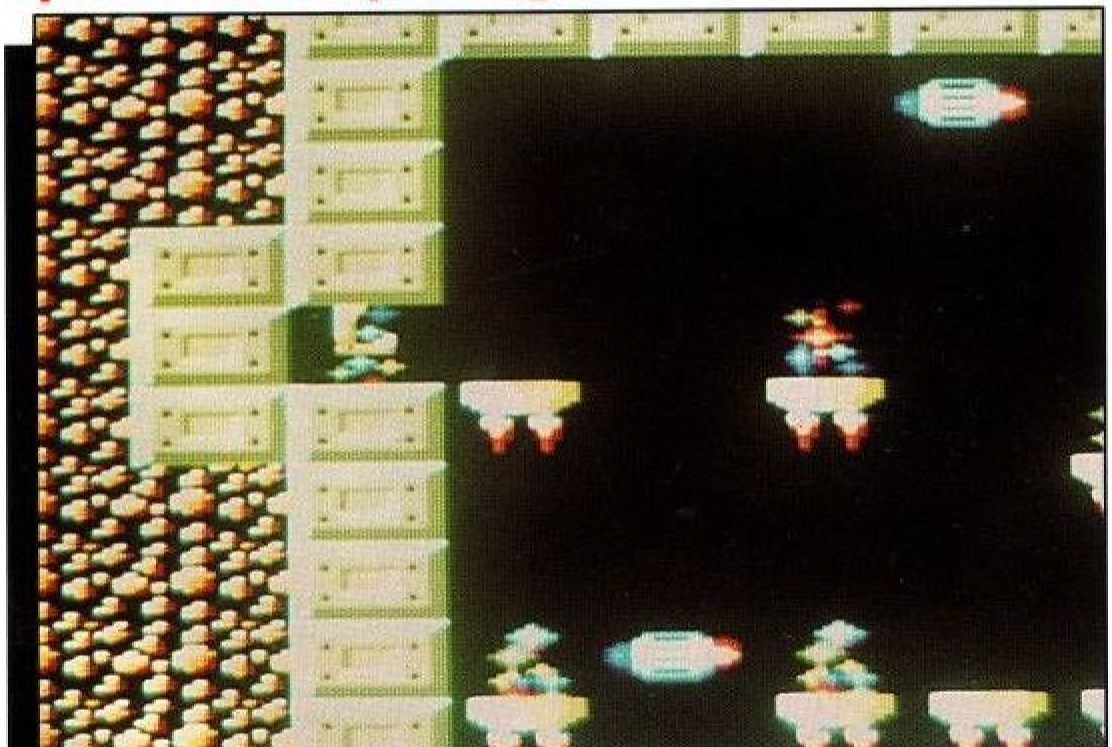
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Space Frogging

For all you doubting Thomas's out there, take a look at what Glen Cook's put together using his very own Glenco Sprites Alive package.



There must be a fair few people out there who, every time they put on the latest computer game in their collection think to themselves: "Shucks, I wish I could do that for a living". Quite a few of those people have probably also read the blurb that accompanies the Glenco Sprite designer programs and thought to themselves "How can I possibly become a games programmer just by spending £27 on a utility with a flashy cover. That can't be possible".

OK, so you're not going to become Raffaelo Cecco or the Oliver Twins overnight, but take a look at this little program put together in BASIC from that self same utility by the boys and girls at Glenco and you'll see that buying the Sprites Alive package is very definitely a step in the right direction.

Space Froggy is billed by Glen himself as 'as good as any budget game currently on the market', and he's not far from the truth. The colours are all there, the graphics are precise and the scrolling is exceptionally smooth for a compiled Basic program.

So what's it all about? There's a worldwide shortage of 6128 rom chips. In fact, there are only nine left; and the only man who can locate them has just exploded in a puff of smoke. Who you gonna call? That lovable green alien Space Froggy.

The nine missing rom chips are located around a maze of rooms and tunnels and you need to collect all of them to save the world. That may sound easy, but it isn't.

Lurking around every corner are nasty aliens who want to make your life complete and utter misery. The only thing you can do is bide your time and avoid them, or jump over them.

Scattered around the passages you will find keys, which you will need to get into locked rooms. Some of the chips are located within these rooms, but others are harder to locate and you'll need some skillful joystick manipulation to dodge the alien guardians.

Stepping onto the handy hoverboards will help you into the more inaccessible areas, but don't forget to keep up with them, or you'll find yourself floating downwards fast.

All around the maze, you will find crystals and energy packs. Pick up everything you come across because, even though you start off with nine lives, you'll need every extra one you can lay your hands on.

Find all nine rom chips and you're home and dry, the world is saved.In its own right, Space Froggy is exceptionally playable and good fun into the bargain.

What's that? Bargain? Not half! What's so special about this game is that it's absolutely free. Designed as a demonstration of the capabilities of the Sprites Alive Compiler package.

For that reason, by the time you read this review, the Space Froggy game should be sitting waiting for you on the Maxwell House Bulletin Board. All you need to do is dial 071 828 1577 and look in the CPC area and start downloading. Alternatively, or if you haven't got a modem, get in touch with Alan Scully at 119 Laurel Drive, East Kilbride,Glasgow G75 9JG, and ask for Space Froggy from the Scull PD software library.

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TOP 20

Footie shorts and shinpads come out as the ACU team gets to grips with Subbuteo, dares to go in and get the Hostages and handles (very, very carefully) the explosive TNT.

GAMEPLAN



SUBBUTEO

All the fun of the board game wrapped up into a real beaut of a program



HOSTAGES

Who dares wins in this test of wits against the terrorists.



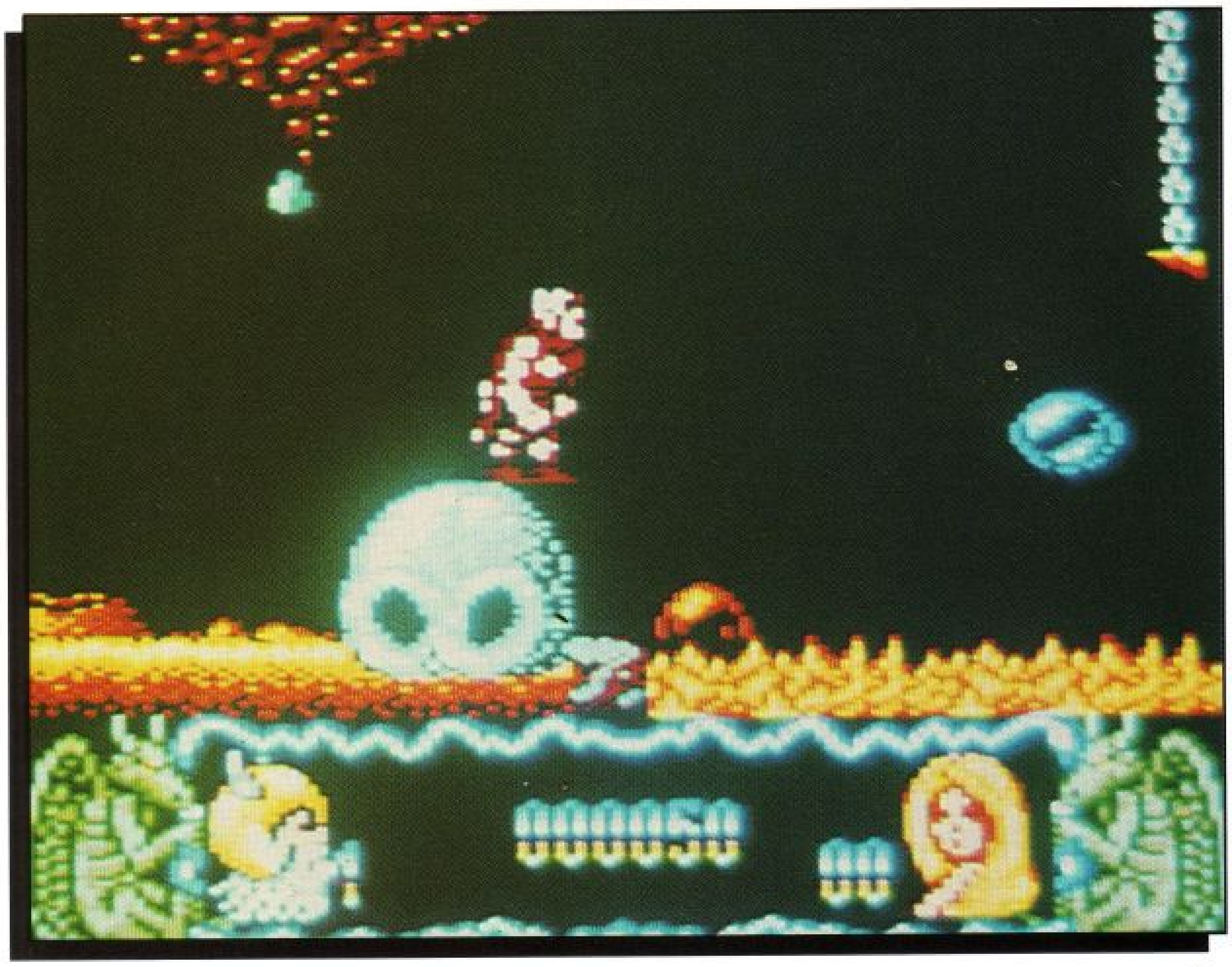
TNT

Five superb Tengen hits in one. Can you handle it?

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19	(NE)	4x4 Off Road Racing	Kixx
20	(12)	Quatro Sports	Code Masters



Deliverance

There are more fairies to be saved and this time Stormlord means to finish the job.

Do you remember Stormlord's last little outing into the Underworld? You do? Well, you'll no doubt remember what fun it was. In Deliverance, Stormlord II, he's back for more and this time he's not going back without a result.

The wicked queen of the nether regions has been out capturing fairies again and your job is to go in and get them back, battling against some very high odds indeed.

Starting off with just the ability to spit out fireballs, you will meet some pretty formidable adversaries on your way. The idea is to look around you at all times – you never know what weapons have been left behind by more unfortunate adventurers than yourself.

When you have a fair selection of firepower, select which one you like, but some will need a little practice to perfect.

Controlling Stormlord is fairly easy to start with, your main concern being to time those all-important jumps. One false move can cost you alife in this hostile environment. If you need to jump higher, you can try the jump option up to three times in quick succession. If you still haven't made the distance by then, forget it.

Work your way through the levels and collect as many fairies as you can by walking into them. Beware of the demons though, their job is to get the fairies back again.

Your big chance to win back lost lives comes in the bonus level. Here, the fairies want to give you gifts for your troubles but, because they are rather shy, you've got to capture them first. Pressing fire on this level will lay a heart in your path. Use these hearts to build platforms to the fairies and collect as many gold coins from them as you can. For every two, you get an extra life.

When the low flying dragon appears, steer clear or the bonus level is over.

Throughout the game, you will bump into a very nasty dragon indeed. Take care when you approach it but be prepared for its favour as well. In certain parts of the game, if you can prevent her eggs from falling to the ground, you will make a fast and furious ally to wing you through the air.

Stormlord is a marvellously crafted gem from the Cecco stable, with some exceptional, Gothic looking graphics and some neat effects to keep the interest. There are also a fair few puzzles to solve.

At the end of every two levels, an encrypted score code will be revealed. Make a note of it, as you'll need it to gain access to higher levels. You get four goes at getting the code right and if you don't, it's back to the beginning again. Be warned.

Mastering the movements of Stormlord is your first objective. Manage this, and the game is a joy to play. If not, you'll find the demons breathing down your neck and the fairies crying out in despair.

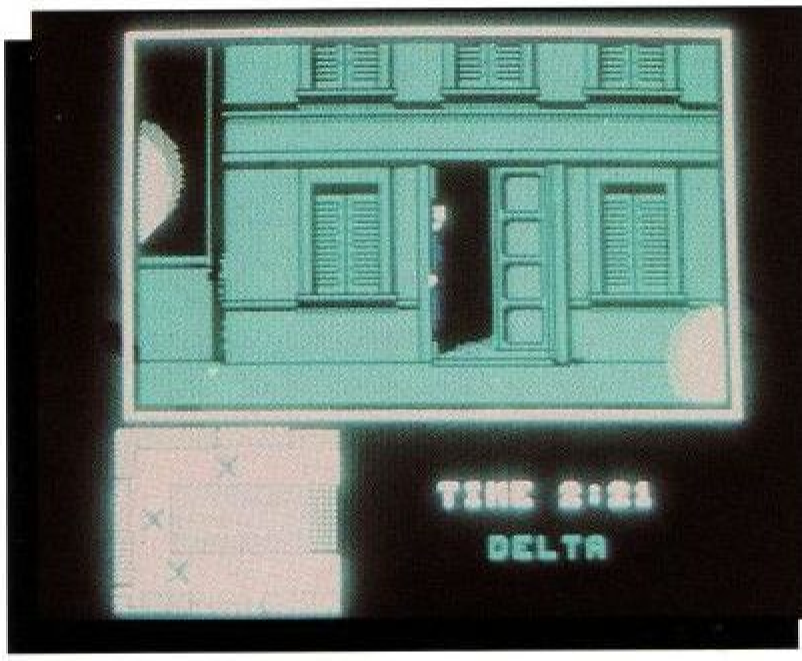
John Taylor



ROUND-UP			
NAME	Deliverance		
FROM	Hewson	PRICE	Disc £14.99 Cassette £9.99
82%	80%	80%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Hostages

The embassy is under siege, innocent lives are at stake. Can you get them out alive?



This is it: your worst nightmare. As boss of the Direct Intervention Combat Team, you've encountered some tricky situations in your time, but this one is going to be the toughest test of your career to date."

The terrorists have taken innocent hostages and left the streets for the sanctuary of the embassy. No-one's coming out and no-one's going in except, that is, for your six crack troops.

Your mission is to get inside and eliminate each of the terrorists without causing harm to the hostages, a tall order when the terrorists control all three levels of the embassy building. Your move.

First off, you've got to position your three marksmen Delta, Echo and Mike, in the three buildings overlooking the scene of the crime. This is easier said than done. A brief overview of the area will mark the best locations for your men with a flashing cross.

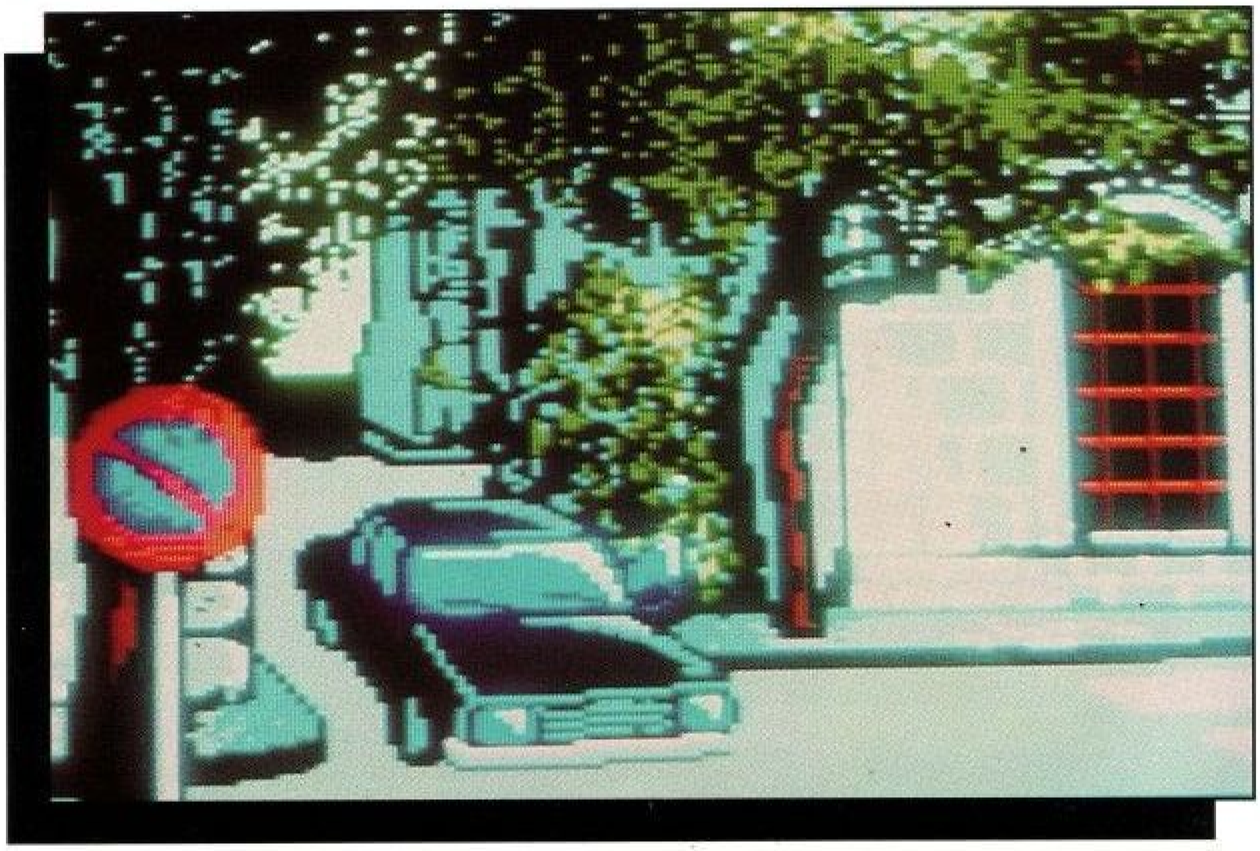
One at a time, move your men silently along the street, taking care to avoid the terrorist spotlights. If you're spotted, they'll open fire, so use all of the movements available to you to duck behind walls, jump through windows and hide in door recesses.

Once you've safely positioned one marksman, press fire and do it all over again with the next. If you manage to set up all three first time round, you're doing very well indeed. Now it's time for the second stage.

Down comes the helicopter and three more of your men are dropped onto the roof of the embassy. Your next task is to abseil down the outside of the building and smash through the windows into the building. You'll need to be quick to control your descent and timing is vital as you go through the windows.

Once inside, you're on the hunt. Examine every room and keep your eyes open for terrorists. If you see one, blow him away, then approach the hostages and get them to follow you to a windowless room before going off for more.

At any time during the game, you can return to your marksmen and examine the windows. If you see a shadow, be careful, it could be a hostage and not a terrorist. Blowing out the windows will help your abseilers to gain entry and you might even be able to work out which of the shadows needs to be killed.



Hostages is an extremely tense, nailbiting thriller which will have you glued to the screen throughout. As you start out, pick your difficulty level, from Lieutenant to the complex scenerio of Commander, and then choose from further difficulty options limiting the timescale of the whole operation.

A few rounds on the training level are a must, to enable you to get used to the chopping and changing between agents and to get to grips with the ropework.

The scenario of the game is excellent and the shadowy atmosphere created by the clever graphics combines to create a package of suspense that will be hard to put down. Get out and get gunning.

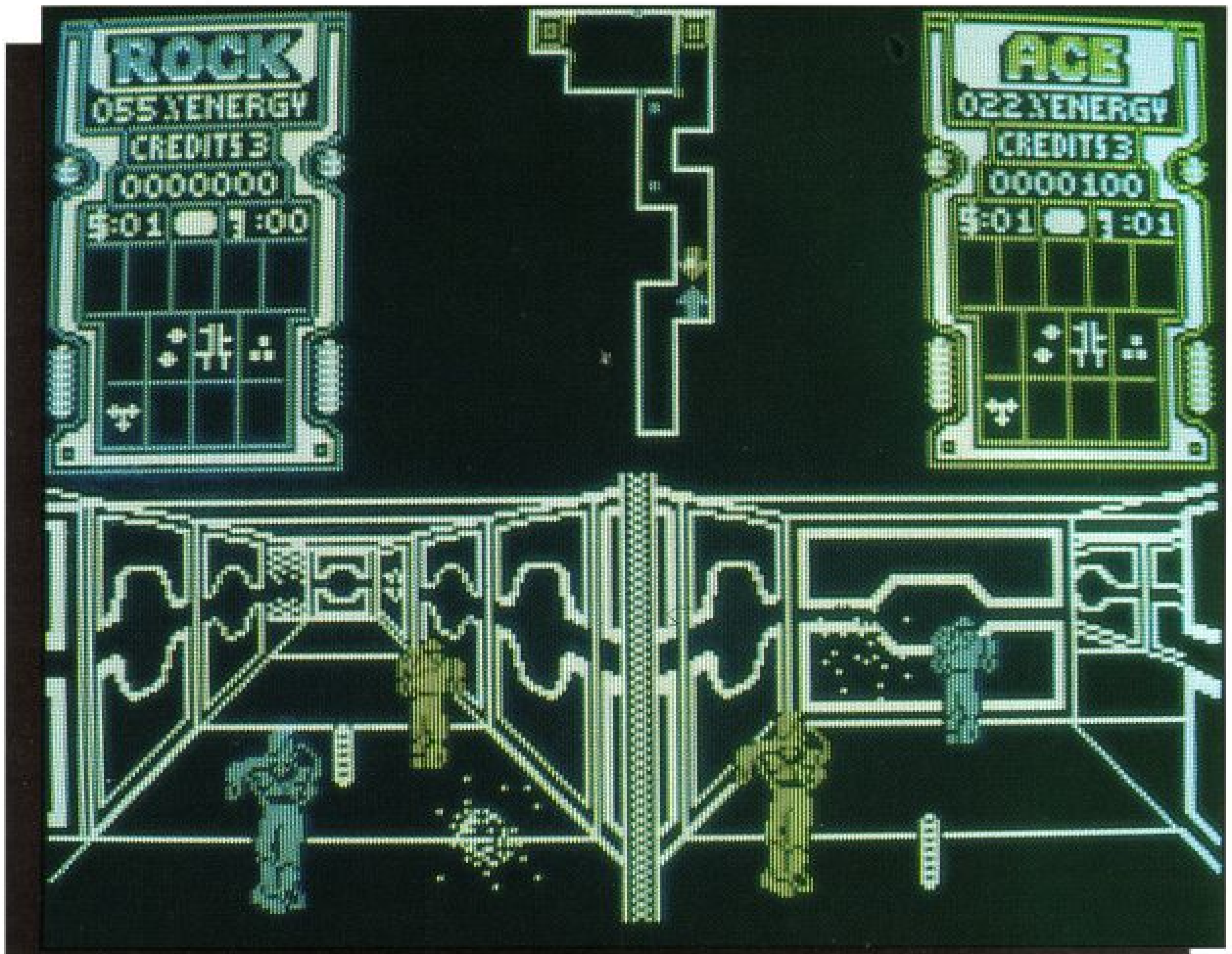
Chris Knight

ROUND-UP

NAME	Hostages		
FROM	Infogrames	PRICE	Disc £14.99 Cassette £9.99
86%	82%	86%	GOLD
GRAFFIX	SONIX	PLAYABILITY	VERDICT

TNT

Explosive action as five of the best-selling Tengen coin-op conversions of last year gather together under one roof.



Explosive software is the billing and that's exactly what it is. Five superb titles forming superb value for money, with hordes of action to keep you busy over the winter months. Arcade addicts sit back and prepare for one of the biggest treats of your lives.

Here we go. First on the list is the classic car smash Hard Drivin'. Ok, so it's also being included on another of Domark's compilations, Wheels of Fire, but when you get a game this good, you can't blame anybody for giving it a little overexposure.

Rev up the engine and choose between a death defying battle of speed against the Phantom Photon, or a dice with death over the loops and turns of the stunning stunt course. Dare you try that awesome loop the loop?

Whichever, the superb 3D graphics will keep you coming back for more, while the slow motion replay option will make you cringe at your last error. Excellent stuff.

In a more lighthearted vein, take to the rapids, any rapids you like, be they in Africa, America, anywhere on the Earth, or even on the moon. Whatever, take to them in your crazy inflatable Toobs and prepare for some of the best fun in ages.



Try it on your own or against a friend as you speed down the waterways, dodging in and out of the posts, picking up bonuses and tin cans to throw at the lurking weeds and make sure you get past the finishing post first on your way to becoming all round top Toob Dude. This is pretty rad stuff, guaranteed to keep you glued to the screen til the bitter end, or should I say, watery end.

Further down the line, we have one of the best cops and robbers blasts of last year in APB. Take to the streets Constable Rookie and try to keep up as the villians tear off in their getaway cars. You've got to make arrests to make the grade, so get after them.



Look out for some spectacular shoot out scenes amidst the excellent graphics, take the cars off the road and make that all important arrest. Hang on to your seat throughout for some of the best high speed chase scenes yet.

Next up is the mega shoot-em-up Dragon Spirit. Go get your jodhpurs on and get used to the feel of the dragon scales as you mount the fire breathing beast in your quest to do away with the bad guys.

There are some excellent graphics sequences in this one, as well as some superb scrolling as you work your way from hard to harder. You'll need to be good to stay aboard your mount, one false move and it's all over.

Finally in this marvellous package, we come to Xybots, the epic tale of good versus bad in the world of the future. There you are, half guy, half robot with a mission. Clear the streets of criminal scum to make the world a better place for the rest of us. Sounds sweet doesn't it? Don't you believe it, this is one tough mother of a game and if you're not the fittest, you don't survive.

What have you got? You've got an awful lot wrapped up in one excellent package. If you like your action red hot, you'll like TNT.

John Taylor

ROUND-UP			
NAME	TNT		
FROM	Domark	PRICE	Disc £24.99 Cassette £14.99
85%	82%	95%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Tie Break Tennis

Take your place on the Centre Court and serve for glory.

There's a strange addictiveness to games that have two people playing simultaneously against each other. Just look at the huge success of Kick Off. It stems from it being a fantastic game and having the option to play against another human.

Tie Break Tennis is similar in that it's a sports simulation with a great two player option and is wholly addictive. Unlike many sports simulations Tie Break Tennis is the real thing - let me explain.

For a start, the different configurations you can play are staggering. You can play singles or doubles against either a computer opponent or another human. If you choose to play against the computer you can also choose your opponent (when in training mode) from a list of six. Each of these players has different skills and abilities so you might find it a lot easier to beat one than another. You can also pick the type of court you wish to play on, ranging from indoor courts on grass or clay to outdoor courts with the same options. Each court has it's characteristics so you'll notice that the ball acts differently on the various surfaces. Then you can choose your racquet. All of the racquets available are made of a lightweight material but each has a different string tension and so affects the ball quite a lot.

So, once you've chosen your partner, your court, the racquet and a responsive joystick you are ready to play. The first thing you'll notice is that serving is not as easy as the instructions will have you believe. So a quick bit of coaching here. Just push the joystick forward and let go immediately. This action will ensure that the ball whizzes over the net and into your opponents court. From here on, the going gets tougher and you will need to perform a number of tricky shots if you are to catch the computer out.

You can perform some really sophisticated shots as well but every shot depends on your timing. If you hit the ball early or late it will veer off at an angle. The degree of the angle depends on the direction of the ball prior to your returning it, the exact time you hit the ball and type of shot you played. So, for instance, if you want the ball to have a really dead bounce on your opponent, and the ball was coming from left to right accros the court, you would need to hit it early by releasing the joystick from the left so that it is returned over the net in the direction it came, and bounce short. If it sounds complicated, it is and it will take quite a while to become really efficient.

However, once you know what you are doing, it's only a matter of time before you win the tournament. Praise must go to the Ocean for the sheer quality and addictiveness of this product. Whether you're into Tennis or just watch one Wimbledon game a year, you're going to love this.

Andrew Banner



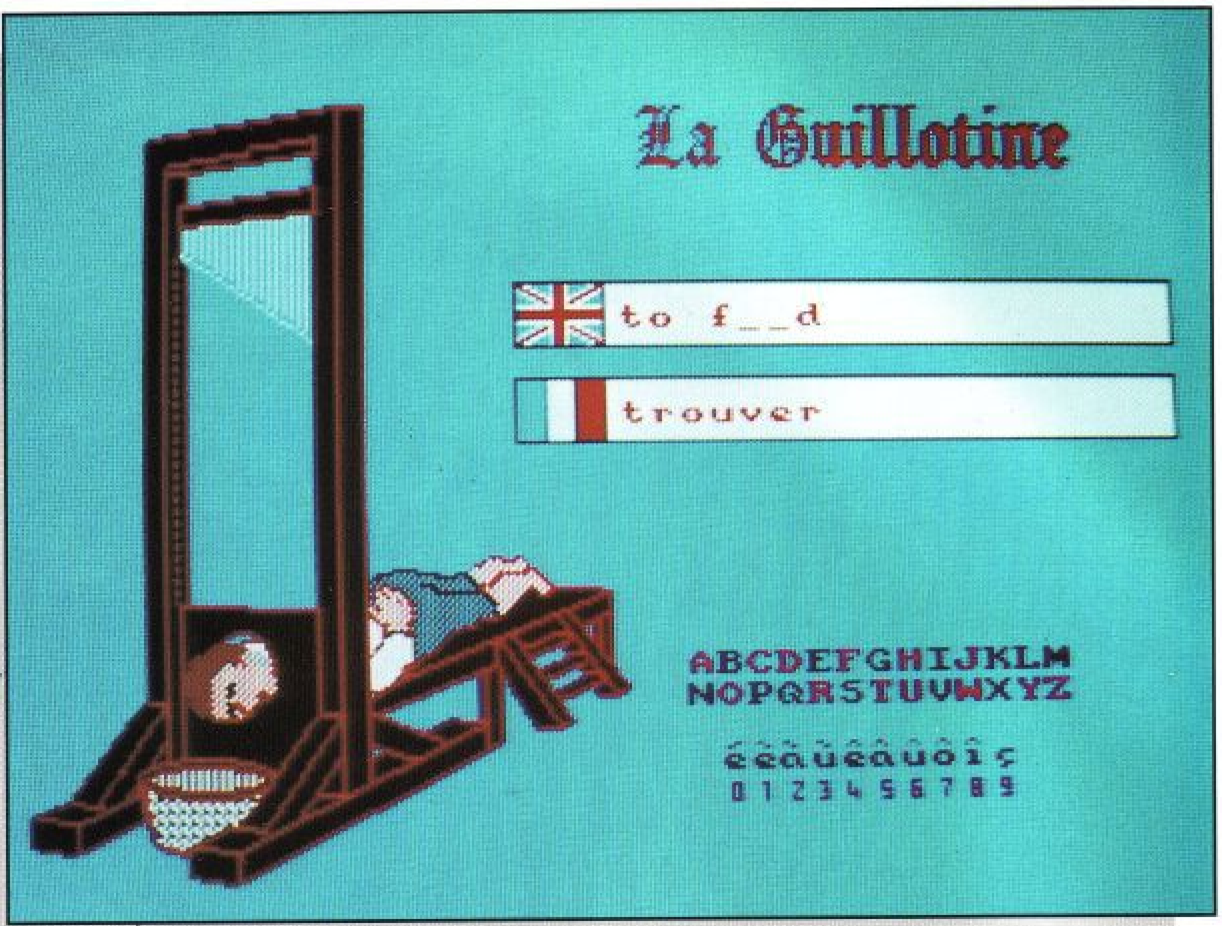
ROUND-UP			
NAME	Tie Break Tennis		
FROM	Ocean	PRICE	Disc £14.99 Cassette £9.99
67%	40%	85%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

French Test

Learning for fun with a little help from your amis!

Whoa! Hang on there a minute. I can hear the cries now of "this isn't a game!". Well, on the surface this is very true indeed. However, start to play around with this little program and you'll begin to see why it's been included in the Gameplan section.

Probably the worst part of learning a language is getting to grips with the vocabulary and this is where French Test can help you out.



Listed on side one of the disc are a whole host of different categories for you to discover, ranging from personal details, through house and garden, to cars, hospitals and diseases. The list is endless, with the French and English translations provided alongside.

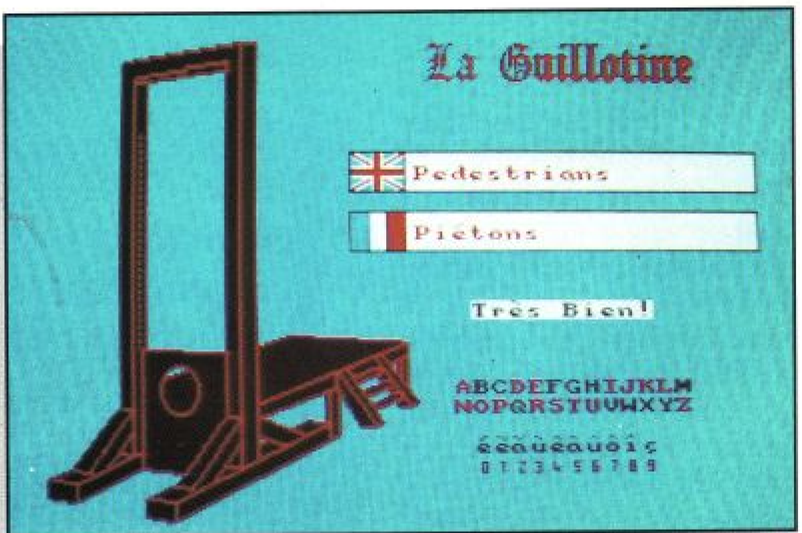
Take a look at the option menu and you'll see that you have the chance to test yourself n as few or as many pieces of vocabulary as you wish.

Each section is listed as basic or higher, which is intended to run alongside the requirements for the GCSE exams and can be used under the supervision of a teacher.

Try a quick test first on a single category, try the translations and the next time around, you'll be asked to rectify your mistakes. At the end of each test, a progress assessment will keep you in touch with how well you are doing.

Later on, you can try merging different categories to improve your word power as you power towards those all-important exams. If you feel you can try without cheating, have a go at the mental tests for a quick overview of what you have learnt already.

On side two of the disc, the fun really starts as you get to grips with the whole dictionary of french words. Take a few at a time to start with and test your wits against the guillotine.



It's a bit like Hangman really, pick the letters to make the English translation of the word. Get it right and you get a little tres bien signal, get it wrong and you'll see the guillotine building up slowly to the grand finale – you lose your head!

Once you've got over the guillotine act, get hold of a spare disc and start inputting your own entries. If you get homework on a regular basis, fill it in and test yourself, creating your own tests to suit yourself.

French Test is an excellent utility which helps to put the fun back into learning. Use it little and often for the best results and GMF programs is so confident of its success with your studies that if you don't get your GCSE French after having used French Test, they'll refund your money, providing you send the program and proof of failure back to them.

Personally, if you use it well, your chances of failure should be very slim indeed.

John Taylor

ROUND-UP			
NAME	French Test		
FROM	GMF Program Tel: 081 861 2891	PRICE	Disc £15.95
80%	N/A	84%	GOLD
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Wheels of Fire

Race, chase, thrills and spills. The definitive collection for driving freaks.

Never before have such epics of the driving arena been brought together into such a definitive package as Wheels of Fire. No matter what you like best in a race game, it's all here and more just waiting for you to unwrap.

First up in this superb offering is Domark's own Hard Drivin', which will have you risking life and limb around two of the toughest tracks for out and out power and a chance to come up against the awe-inspiring Phantom photon. For the more adventurous of you, the stunt rack will have you all over the place as you battle through the loop-the-loop in a desperate bid to stay on the track.

Featuring stunning 3D graphics and the chance to turn back the clocks to look at your latest disaster in slow motion, Hard Drivin' was a classic in its own right, but its an absolute must as part of a compilation.



Not content to feature only its own creations, Domark have brought together three other blasts from top name software houses to make this a collection not to be missed.

Ocean's marvellous Chase HQ has you chasing some of the meanest villains in town in a race against the clock. Catch up along the dirt tracks, tunnels and city streets, then ram your message home on the criminal's car. It's tough, but it's a joy to play as you move up the ranks to catch the bigger baddies.

Take up the highways of America in US Gold's rip-roaring bumper battle across the States. There are 16 gruelling stages in all, as you take your red hot Ferrari F40 through the cities, deserts, mountain snows, tunnels, against some of the toughest opposition in the world.

The race goes on, day and night, rain or shine and all you've got to do is make sure your tyres keep a grip and stay on the road until the finishing line is in sight. Go for gold.

Last, but by no means least, in this superb compilation, is Activision's wacky Power Drift. Have a look at the characters on offer, take your pick, then get ready for some of the craziest race action of all time.

There are 12 drivers in all, so you should work out your favourites before too long. Get used to their style and take them around each of the 27 stomach churning circuits to get to the top of the champions' ladder.

Each of these games were best sellers in their own right, superbly presented and each



with their own marvellous style of gameplay. Domark have certainly come up with quite an achievement to bring them all together in one package, so if you're one of those types who yearn for the smell of burning rubber and the sweet sound of crumbling gear changes, look no further than Wheels of Fire. There's something here for everybody, from high speed thrills, to death-defying spills and if any one of the above games is not instantly recognisable to you, go out and put that right – now!

Chris Knight.

ROUND-UP			
NAME	Wheels Of Fire		
FROM	Domark	PRICE	Disc £24.99 Cassette £14.99
86%	84%	94%	JACKPOT
GRAFFIX	SONIX	PLAYABILITY	VERDICT



If you've never encountered the hallowed game of Subbuteo before in your life (God forbid!), be prepared for quite a surprise. The rules, you see, are very, very different from the game you see televised every weekend on the sports shows.

Subbuteo, the board, and now the computer, game is as far as I'm concerned far more nailbitingly exciting, because you've got to use your noddle as well as your flicking finger to get results. OK, so it's still a game of two halves and it's all about getting more goals than the other team but, putting all that aside, you'll be astounded at the fun you can have in front of your computer screen.

Load up the game and the first thing you'll see is that, not only can you play on your own, but you can also arrange two player friendlies and even set up an eight player superleague to really get the old adrenalin flowing.

If you can't get that many of you together to start with, don't worry, the computer will come up with some fiendish opponents to make up the numbers.

Right, pick your team, choose your playing colours and formation, then get out on the pitch and do the business, although against the computer opposition, that's easier said than done.

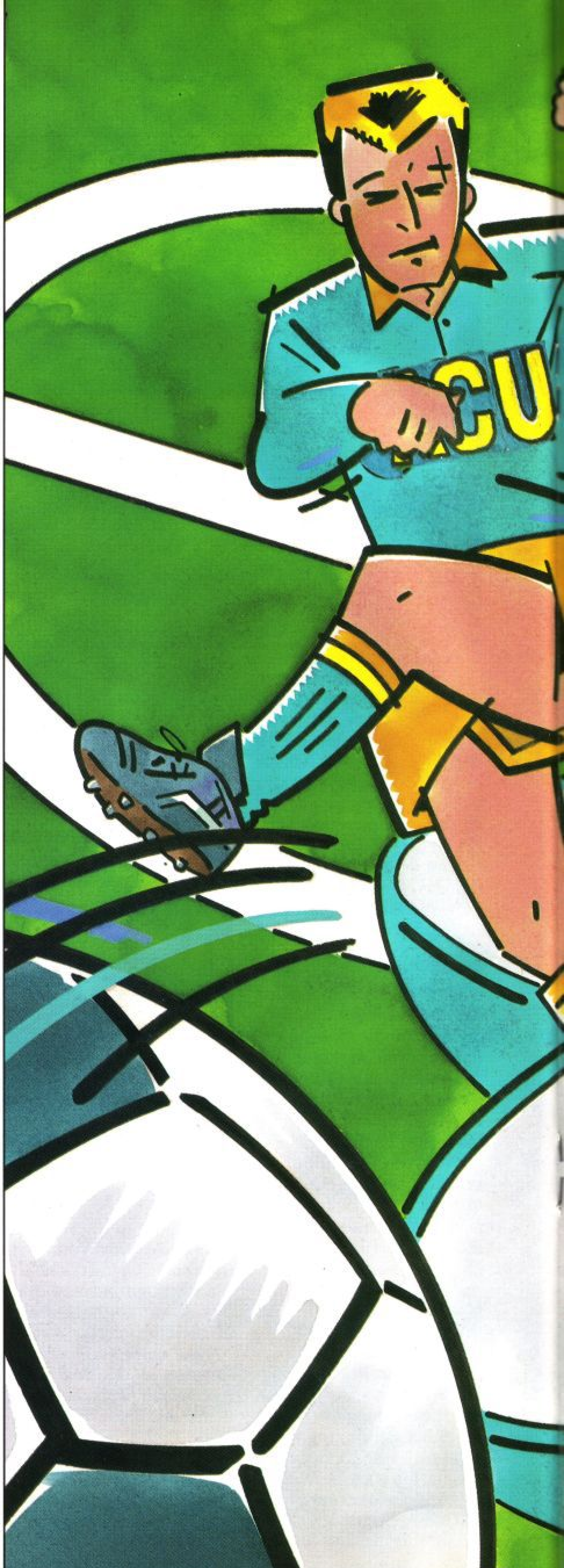
Getting into the playing arena, the computer will have a quick think about its first move and then you're away. One of the basic rules to remember is that if you are offered the chance of a defensive flick, it is sometimes best to take it, as you don't always get that option when the other team is in possession.

When you actually get to control the play, getting used to the movements will take some time. Study the pitch,

Subbuteo

Subbuteo – the soccer game with a difference that will convert even the most ardent of non-believers.







pick the player you want to use, then gauge carefully what angle the flick should take and how strong it should be.

Remember, if the ball is very close to the touchline, you can always make a positional play to allow you a better shot next time.

Now then, if you are expecting to see a full run-down of the rules of Subbuteo in these pages, you've got another think coming.

To be honest, a quick overview of the number of positional shots allowed at throw-ins and corners, or the procedure for penalty taking, or the rules for 'forcing' and 'backs', would do no justice to this superb game at all.

You really need to read through them all for yourself to avoid being caught for a foul in your own penalty area and, to this end, those awfully kind people at Goliath Games, have provided a full set of rules and instructions, taken direct from the Waddington lists, which you should have a good look at before you get too engrossed in the game.

All you really need to know to start off with is that you can kick the ball wherever you like on the pitch, being careful to be within the shooting area if you want to have a go at goal. Just be careful to work out where your player is going to end up after the flick, however, you don't want to give away a foul too close to your own goal.

Apart from the actual games, which are viewed from above, with strong colours and excellent graphics, allowing faster gameplay on the CPC, the standard of the game is superb.

Use the handy stop clock to make your own time limits for the match and then pace yourself for some non-stop action.

Even though the game hasn't got all of the refine-



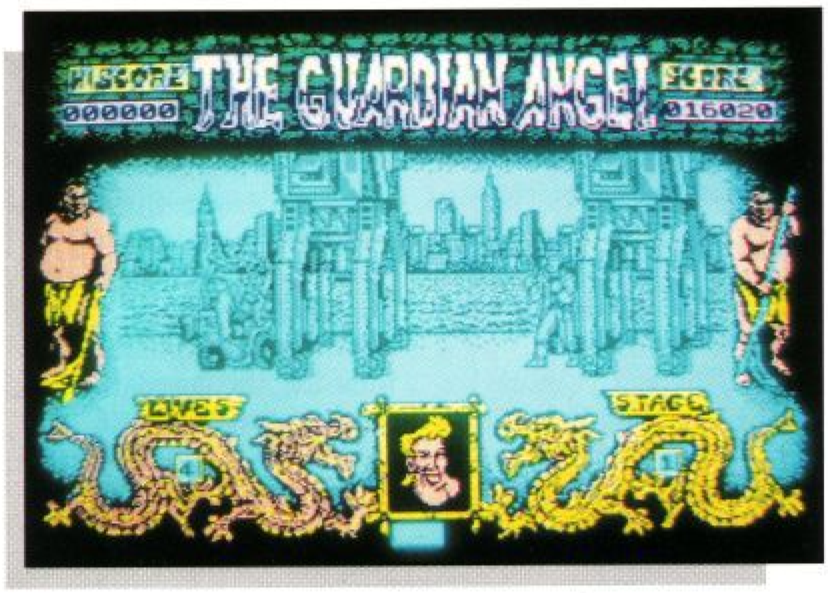
ments of the 16 bit version, which CPC game has, there's enough to see and do throughout the game to keep you occupied for hours.

With the option to save and load old leagues, you can keep the suspense of an eight player league going for as long as you like, working out the points to decide the overall Subbuteo champion.

You never know, if you get worked up enough, you could find yourself joining in one of the local board leagues in your area, it's certainly worth having a look in.

John Taylor

ROUND-UP			
NAME	Electronic Zoo		
FROM	Goliath Games	PRICE	Disc £14.99 Cassette £9.99
82%	78%	84%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Budget Basement

Get ready for some great new action from the budget arena.

GUARDIAN ANGEL

Get down on the streets and make them safe for Mr and Mrs Ordinary in this rough and tumble struggle against the thugs.

Keep your head as they come at you, in twos and threes, armed to the teeth with flick-knives, chains, baseball bats and chainsaws. You name it, they've got it and what have you got? Your trusty fists and feet.

Unfair odds you may think. Well, take some time to master the moves and you'll soon find that luck favours the brave.

The scenario is excellent, with lots of unpleasant surprises, like plague carrying rats, to keep you on your toes. Watch out for Ricky 'Death Star' Chang in his fork lift – he means you no good at all.

It's a tough game and you'll need to be quick to survive in your bid to rid the streets of Manhattan of criminal vermin, but for sheer playability, it's well worth dieing for the cause.

OLLI & LISSA 3

The fun and games start here! Olli's beloved car has been stolen and scattered around the mazes and dungeons of the castle. There's nothing for it but to grab a candle and get straight on the trail.

Once inside the spooking building, your first quest is to find the magnifying glass to help you examine the missing parts of the car. Then you've got to find the spanner and put them back together in the basement.

Remember, Olli can only carry one of each object, so you'll be tripping backwards and forwards to rebuild your dearest possession.

It's not all fun and games though. On the way, you'll bump into some very unfriendly ghosts. Don't touch them as they may do you harm. Picking up the telephone may clue you up a little, and keep your eyes open for some handy icons to give you much needed extra lives, protection and courage.

Olli and Lissa is a wonderfully thought out game with plenty of fun and action from start to finish. The graphics and scrolling are colourful and smooth and the sound effects are decidedly spooky.

ACE 1 & 2

Superb aerial action for flight freaks here as Elite have bunched together both ACE jetfighter blasts onto one budget delight. Goggle up and prepare for some excellent cockpit views as you choose from a whole host of mission options. There are dogfights, air-to ground and air-to ship attacks to choose from, so take it easy at first until you get a feel for the controls, them let them know you're there.

One of the best aspects of these games is the two player mode. As a fighter pilot, there are just too many controls for you to keep your eyes on to worry about targets, so bring a friend along for the ride and get him to work your tail guns or pinpoint strategic enemy targets for blasting.

Working together as a team, both games offer plenty of entertainment and if you want to know if you've scored a hit, just take a look behind you.

Keep plugging away for the all-important title of Air Ace, and make sure you get that certificate of success. Don't worry if you don't come near at first, it's deliberately tough to make sure that only the very best will make it to the top.

PRO-GOLF

Moving on to what some may call the gentler climes of the golf course, you won't get much better that this little gem.

Pro-Golf Simulator features all the hazards of the real thing; bunkers, wind, trees, roughs and also gives you the choice of whichever club you think you need to get the ball down the hole.

Choose between putting or driving practice, then take on three of your friends over 18 gruelling holes for the championship, taking in some marvellous overhead views on the way. Get onto the green and you get the chance to zoom in for a better look at the lie of your ball for that vital putt.

Judge the strength of your shot carefully, some of those breaks can be very misleading. If you feel you may get bored just playing a round with your friends, this superb package also features a course design option, enabling you to create your very own 18 hole golf course. Make it as easy or as challenging as you like, save it, them get your friends to test it out for themselves.

PRO-TENNIS

You cannot be serious, that ball was definitely IN.Well, with this brilliantly thought out tennis simulator, watch the chalk dust and see for yourself.

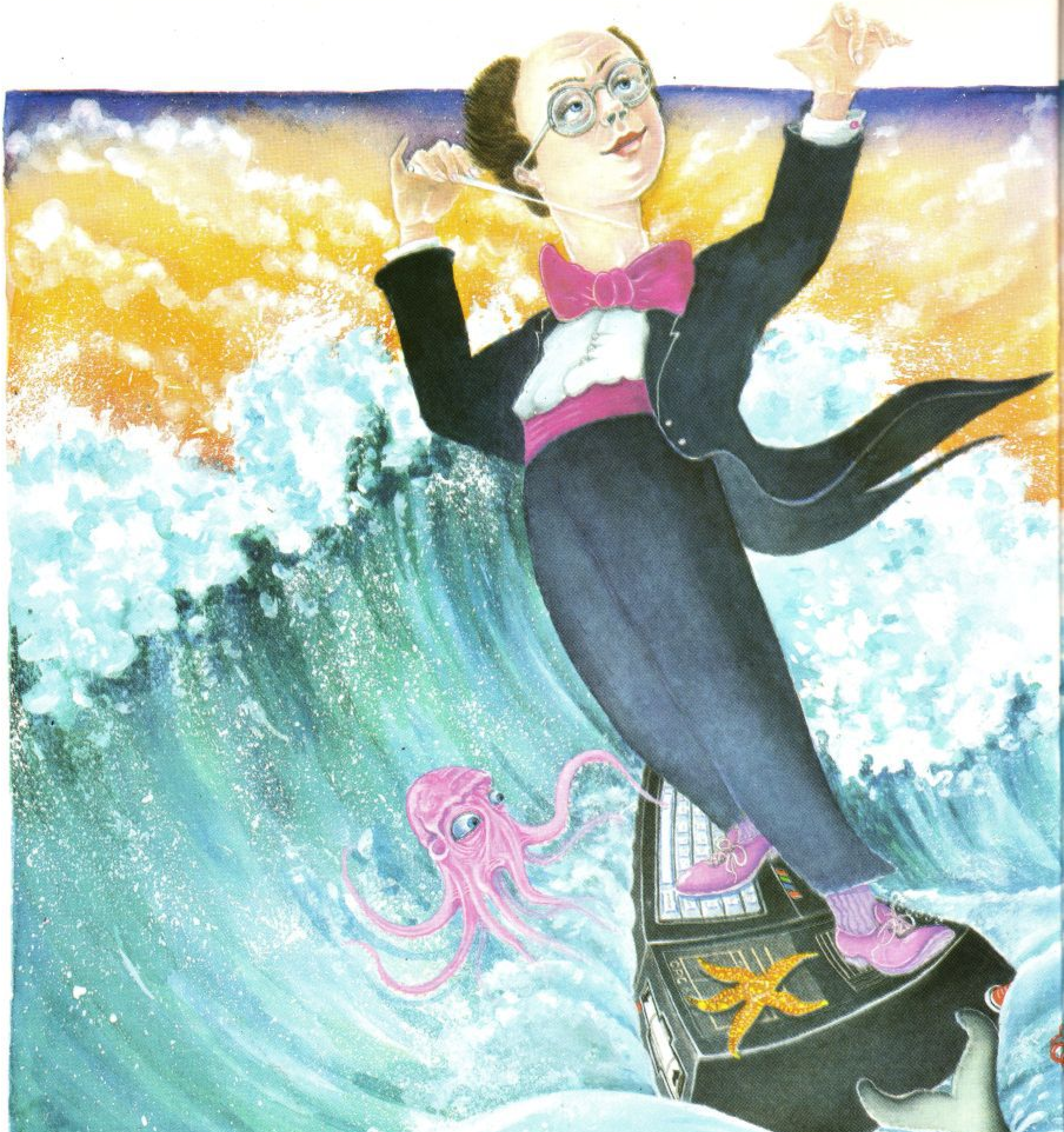
There's everything here for tennis fans; grass and clay courts, serve control and a chance to smash the ball out of your opponent's reach.

Getting used to the serve may take you a little time, so make the most of the practice option until you think you're getting there.

Matches are just like the real thing as you struggle to reach six sets. Watch the shadow of the ball to tell you where it is going and then use the spin mode to dumbfound your competitor's best shots. Taking on the computer is fun, but take on a friend and you'll soon be coming to blows once the game begins. Pro Tennis is excellent fun, with some marvellous graphics to add to the atmosphere of the game.

ROUND-UP

NAME	FROM	PRICE	RATING
Guardian Angel	Code Masters	£2.99	86%
Ace 1 & 2	Elite	£2.99	82%
Pro Golf	Code Masters	£2.99	80%
Olli & Lissa 3	CartoonTime	£2.99	88%
Pro-Tennis	Code Masters	£2.99	78%



On the Crest of the Wave?

Ian Waugh, musician par excellence, and an extremely nice chap to boot, continues his series with an in-depth examination of sound waves, and how Arnold produces them

In order for a sound to exist at all it must have four parameters:

1) Pitch. 2) Volume. 3) Duration. 4) Timbre.

The sounds produced by acoustic instruments are actually very complex and change throughout their duration. We will look at these four aspects of sound and see how they relate to musical instruments.

The pitch of a note means how high or low it is on the musical scale, and the



word frequency is often used synonymously with it. Frequency is more properly an attribute of the waveform in terms of how many times it vibrates or oscillates per second. The human ear can sense sounds with a frequency of from 20 to 20,000 cycles per second. (Cycles per second is scientifically referred to as hertz and abbreviated to Hz.) The upper frequency limit drops as we grow older.

A tune consists of a series of pitches which have a definite relation to each other. In western music, tunes are based on the notes we can play on a piano where each note is a semitone away from its neighbours The notes are grouped into sections, which we will look at later, to form scales such as C major, B minor, etc.

On a piano the pitch of the notes are fixed. You can not, unless the piano is out of tune, play in the cracks. (no, but I can sing in them - ed) Even if you are tone deaf, as long as you hit the right keys you will produce pleasant music. Other instruments such as those of the string and brass family require more control over pitch and notes can be 'slurred' from one to the other. If this takes place over several notes it is known as a portamento and it is a favourite sound easily created on most synthesisers. The same thing on a piano, harp or xylophone would result in a series of discrete tones or semitones known as a glissando. Both effects are much used by jazz musicians and can add a human touch to synthesised music. Listing 1 demonstrates these effects.

The portamento is produced by passing very quickly through pitch values 478 to 239. Each pitch sounds for 1/100th of a second, set by the last parameter of the SOUND command in line 140. If you remove this last parameter completely the duration will default to 1/5th of a second and you will hear the pitch creep upwards very slowly. If you have a good sense of pitch you may be able to hear individual tones proving that the Amstrad is playing discrete pitches after all. The portamento effect is produced because the pitch is moving so rapidly our ears 'blur' them together.

The glissando example produces a series of semitones played over the same pitch range. Lines 200 and 210 calculate the pitch values. A full description of the SOUND parameters is given in Chapter 3 and the pitch formula is explained in Chapter 4. You can skip ahead if you want to know how they work: these examples are simply to illustrate the effects.

The Amstrad can produce a wide range of frequencies, regardless of whether or not it is a part of our western scale. Oriental music uses pitches which are less than a semitone apart which is why it often seems out of tune to westerners.

This is how loud or quiet a sound is. It is not quite as straightforward as that Many factors affect the perceived volume of a sound. Reverberation, echo, vibrato and duration all tend to increase volume as does the addition of harmonics. For example, a sound lasting 1/100th or even 1/10th of a second will not seem as loud as a sound lasting one second. As you will have heard from some of the previous program examples, the volume tends to alter with pitch. If you are writing a tune in two or three parts you may find that, at certain points in the tune, some lines get lost behind others. This is a result both of the properties of sound and the sound chip and can only be overcome by altering the characteristics of individual lines where required. You will find that generally it is not a serious problem.

The loudness of a sound will vary during its production. For example, a piano, xylophone, or any other percussive instrument produces a note which achieves its maximum volume immediately upon playing and then dies away. A violin takes just a fraction of a second for its note to reach full volume. Brass instruments sound with a sharp attack, even when played quietly, as an initial gust of breath is required to start the air in the tube vibrating. This variation in volume is called the loudness contour or envelope of a sound and plays an important part in determining instrument characteristics. Try Listing 2:

The first example sounds like a recording of an instrument being played backwards. It sounds unnatural, and it is, because most sounds don't happen that way: they don't work up to a crescendo and stop. The second example sounds like a percussive instrument being tapped smartly. If you run both sequences together by removing line 170 you will see how the sound has become more natural.

The ability to produce backward sounds is useful in synthesis and we can make use of it on the Amstrad to create lots of interesting effects.

Rather than control the volume with a FOR/NEXT loop, we can use the ENV command to create a predetermined set of volume characteristics like Listing 3

This creates a percussive envelope and produces a piano-like sound. Alter line 130 to:

```
130 ENV 1,16,17,4
```

This gives us our backward sound and if it did not cut off so sharply it could form the start of a violin-type envelope. ENV is explained in Chapter 5 and one of the programs in that chapter shows graphically exactly how the ENV and ENT commands affect the amplitude and pitch.

Duration: the length of a note

Again, the complexity of a note's duration can be deceptive. In order for a

sound to exist at all it needs *some* duration. As far as the Amstrad is concerned this will not normally be below 1/100th of a second. This is the minimum time you are able to assign a note in the SOUND command and the time parameters in the ENV and ENT commands are given in 1/100ths of a second, too This gives us very fine control over a sound so we can produce finely-tuned volume (ENV) and pitch (ENT) envelopes to suit most requirements.

From a psychological point of view, it is interesting to note the difference in time perception between individuals. Time seems to pass more quickly or slowly according to the events surrounding the individual. A boring after dinner speaker may think he has had the floor for fifteen minutes when he has been talking for half an hour. His listeners may think that three quarters of an hour have passed. There seems to be little evidence to show that a good musical appreciation of pitch, volume and timbre will endow a person with a good sense of time as timing sense is not normally dependant upon the ear.

A reliable sense of timing plays a great part in the creative production of music. Consider, the only attributes of music a piano player has control over are volume and time. The timbre and pitch are determined by the instrument and composer. A performance is judged, however subconsciously, upon accent, rhythm and phrasing - and of such things are great musicians made.

Motility: speed and accuracy

Coordination is often regarded as being of prime importance to a musician. The ability to perform accurately and at speed is at the root of a competent musical performance. A person may be quick and accurate, quick and inaccurate, slow and accurate or slow and inaccurate, all in varying degrees. There is a natural limit to the speed at which a musician can play but this does not determine how good a musician is. Rather, the way a musician makes fine alterations in the timing of a piece will affect the performance.

Such movements and timing can be measured but are well beyond the scope of this book. We can arrange a simple motility test which will be of use not only to musicians but to anyone wanting to develop quick reactions. It may give you an insight into your performance with arcade games. Motility is a measurement of speed and accuracy in movement and can be measured by tapping a key or a pencil and recording the average number of taps made each second.

The last program does this and records the number of taps made in a five second period.

Commentary

The important part of the program lies between lines 210 and 230 which increment the variable, score, when the user presses ENTER. The ENTER key does not normally repeat when held down but line 130 makes sure. Replace it with:

```
130 KEY DEF 18,1
```

and you'll see the difference. The ENT definition in line 140 and the sound command at line 250 produce a little fanfare without using lots of data statements. For the curious and the impatient, this programming method is examined in detail in Chapter 5.

Practice will generally increase your motility rating only slightly. An average for normal adults will be around 8.5 taps per second rising to 9.3 after two or three weeks practice. Men tend to average one half tap per second faster than women.

Timbre: the quality of sound

Timbre (pronounced 'tam-burr') or tone colour is that quality of a sound which enables us to distinguish between two sound sources producing sounds at the same pitch. It is usually very much affected by pitch and the sound envelope, for example we know that the low notes of a clarinet have a sound quality different to that of the high notes. This is evident in the Amstrad's sound generator, too, as we have already heard.

Tone colour is a result of the combination of harmonics in a sound. On the Amstrad, we have no control over the waveform but by clever use of the SOUND, ENV and ENT commands we can trick the ear into thinking that what it hears is something other than a dressed-up square wave. This is because the ear takes as much notice of the envelope of a sound as the timbre. There are limits, however, as to what we can do, and we will be testing and exploring these throughout the series.

Listing 1

```
110 REM Portamento & Glissando Demo 139 FOR pitch=478 TO 239 STEP -1 140 SOUND 1,pitch,1 159 NEXT pitch 160 : 179 FOR d=1 TO 1000:NEXT d 180 : 190 FOR note=0 TO 12 200 freq=261.626*(2^(note/12)) 210 pitch=ROUND(l25000/freq) 220 SOUND l,pitch,19 230 NEXT note
```

Listing 2

```
110 REM Volume Demo 120 : 130 FOR vol=1 TO 7 140 SOUND 1.478,5,vol,1 150 NEXT vol 169 : 179 FOR d=1 TO 1000:NEXT d 189 : 199 FOR vol=7 TO 1 STEP -1 299 SOUND 1,478,5,vol 210 NEXT vol
```

Listing 3

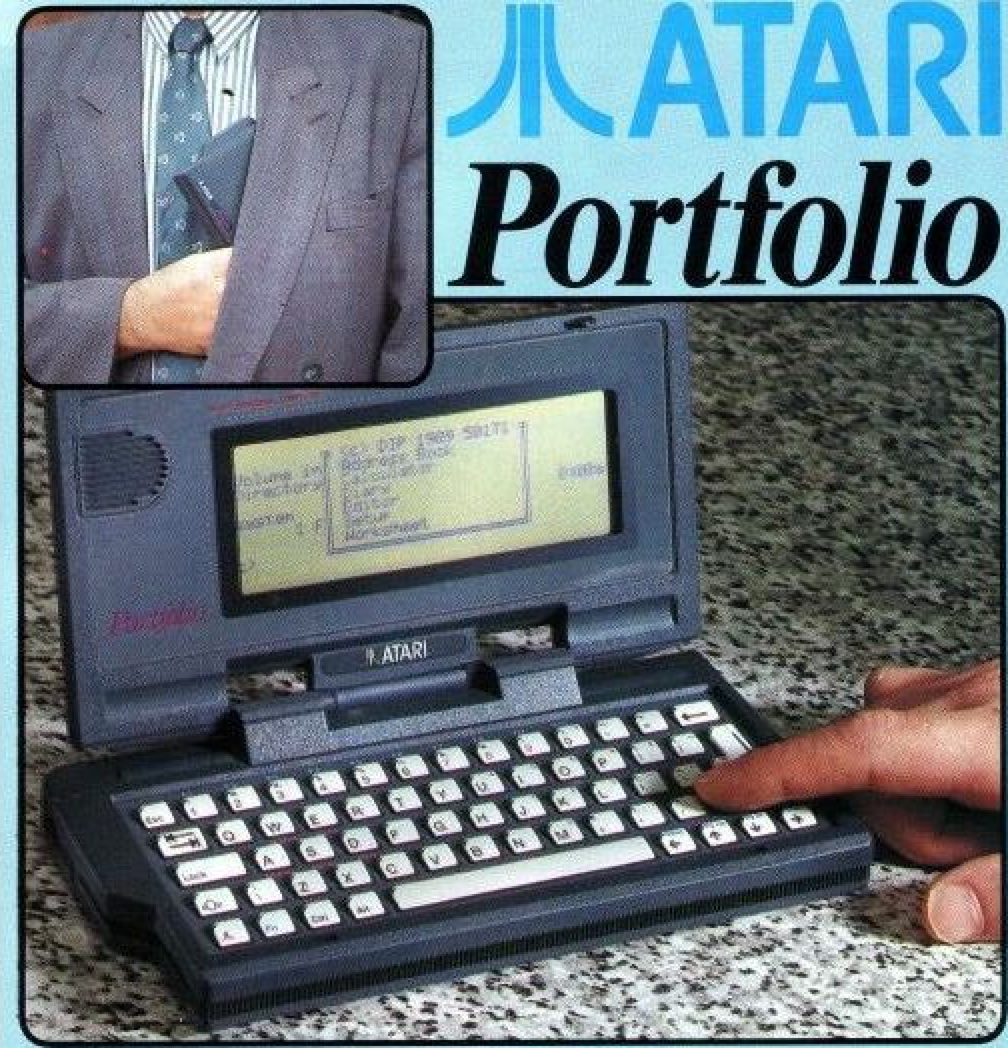
```
110 REM ENV Demo 120 : 130 ENV 1,16,15,19 140 : 150 FOR note=9 TO 12 160 freq=261.626(2^(note/12) 170 pitch=ROUND(125000/freq) 180 SOUND 1,pitch,100,0,1 190 NEXT note
```

Listing 4

```
110 REM Motility Tester 120 : 130 KEY DEF 18,0:REM ENTER Repeat Off 140 ENT -1,=478,10,=379,10,=358,10,=319,10 150 score=0 160 CLS 170 LOCATE 5,10:PRINT"Tap the ENTER key repeatedly"," as quickly as possible and with"," the minimum of movement." 180 WHILE k$="":k$=INKEY$:WEND 199 tim=TIME+1500 200 : 210 WHILE TIME<tim 220 k$=INKEY$:IF k$=CHR$(13) THEN score=score+1 230 WEND 240 : 250 SOUND 1,0,90,7,0,1 260 LOCATE 18,14:PRINT"STOP":PRINT 270 PRINT TAB(9) "Your MOTILITY rating is" 280 PRINT TAB(10) score/5; "taps per second" 290 PRINT: PRINT TAB (11) "Another Try (Y/N)?" 300 k$=UPPER$ (INKEY$): IF k$="Y" THEN RUN 310 IF k$<>"N" GOTO 300 320 END
```

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ATARI Portfolio



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SPECIFICATION

- ★ **Processor:** Intel 80C88 at 4.9152Mhz.
- ★ **Operating System:** Compatible with MS-DOS 2.11.
- ★ **Internal ROM:** 256K containing BIOS, operating system and applications suite.
- ★ **RAM:** 128K with an internal RAM disk, configurable from 8K. Externally expandable to 640K RAM.
- ★ **Keyboard:** 63 keys, QWERTY, IBM PC BIOS compatible. Buried numeric pad and function keys. Optional key click.
- ★ **Character Set:** Extended IBM ASCII (255 characters).
- ★ **Mass storage:** credit card sized memory cards (32K or 64K or 128K RAM).
- ★ **Display:** Graphics LCD, supertwist technology, MDA compatible, 40 columns x 8 lines, 240 x 64 pixels (with the option to window a full 80 x 25 character display). Keyboard controlled contrast.
- ★ **Peripherals:** 60 pin expansion BUS to take serial and parallel ports and memory expansion units.
- ★ **Size:** 8" x 4" x 1" (200mm x 105mm x 29mm).
- ★ **Weight:** 495 grammes (with batteries).
- ★ **Applications:** calendar and diary, address and phone book, Lotus 1-2-3 compatible spreadsheet, text processor, communications software.

COMING SOON!

In addition to the excellent software built-in to the Portfolio Free of Charge (see right), other software and peripheral products, such as the sophisticated Pocket Finance package and serial/centronics interfaces are available. And it doesn't stop there. Many manufacturers have recognised the potential of the Portfolio and have already started to design new peripherals and software. Products currently under development include: Serial interface with built in mini modem, Apple Macintosh interface, business, utility and programming software plus a range of adventure and battle strategy games. For further free details on the Portfolio range, fill in the coupon below and return it to Silica Systems now.

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Your Portfolio will be invaluable in the office or at home as a powerful pocket calculator. It has a full range of functions, including factorial, power and root calculations, all with multi display formats and memories.

ADDRESS BOOK & DIALLER

Portfolio has a complete address book facility that allows you to store hundreds of addresses and phone numbers. And, at the touch of a button, you can retrieve any one of them, or search for a specific grouping, such as "all Italian restaurants". And, when you are ready to book your table, hold your Portfolio to your telephone mouthpiece and use its special built-in tone dialler to dial the number for you.

TEXT PROCESSOR

The Portfolio's built-in text processor program includes word wrap, line and column count, string search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

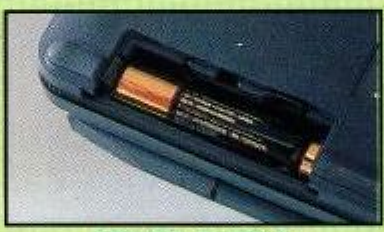
SPREADSHEET

For real calculating power, Portfolio has a Lotus 1-2-3 compatible spreadsheet built-in. It has 127 columns x 225 rows and reads/writes Lotus V1.0 and V2.01 files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible systems software.



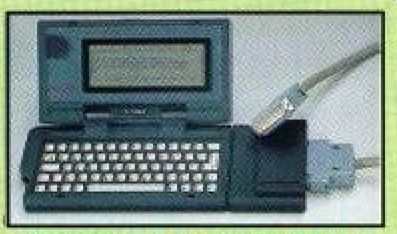
MEMORY CARDS

Portfolio can store and retrieve data and programs from its own RAM, or from small credit card size memory cards, that slot into its built-in card drive. The cards are available in three sizes, 32K, 64K and 128K, so you can carry a library of data in your pocket. The card drive also accepts ROM cards, which can contain commercial or custom software.



POWER SUPPLY

Portfolio is powered by three AA batteries which will run for up to six weeks with normal use, or from the mains using an adaptor. All the peripherals take their power from the Portfolio, so no extra batteries or adaptors are required. A 'battery-low' warning and memory back-up ensure that information is not lost when the batteries are changed.



INTERFACES & PERIPHERALS

Portfolio can communicate with other computers and supports a growing range of peripherals via a built-in 60 pin bus connector. Peripherals available include serial and parallel interfaces and memory expanders (to 640K). You can also add a card drive to your desktop PC, to enable it to read/write to Portfolio's cards.

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Before you decide when to buy your new Atari Portfolio, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your Portfolio, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new Portfolio products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is a new division of Silica Shop, the UK's leading Atari specialists. This new division has been established to provide a service to the more serious home user, as well as to business and education purchasers. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature and begin to experience the "Silica Systems Service".

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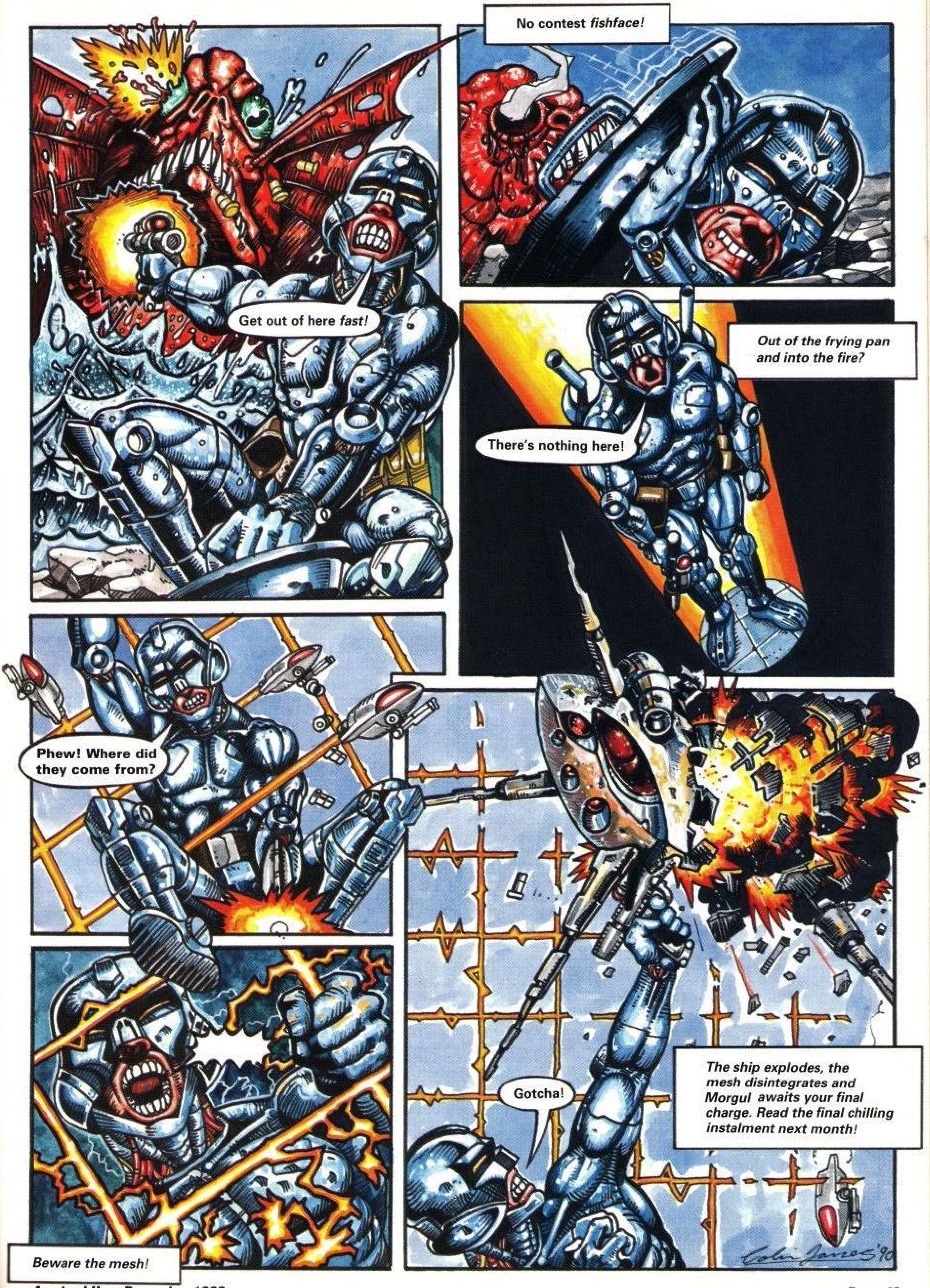
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A brief respite in the Crystal Caverns.
Hmm. Which chute do I pick?
Nnngh! Trust me to pick the worst!
Oh no! Piranhas!



No contest fishface!
Get out of here fast!
Out of the frying pan and into the fire?
There's nothing here!
Phew! Where did they come from?
Beware the mesh!
Gotcha!
The ship explodes, the mesh disintegrates and Morgul awaits your final charge. Read the final chilling instalment next month!

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A Spritely Character

Vax is back to to his usual bouncing form again, and to celebrate that, here's a few classic Pokelets for your delectation

Hallo hackfans! You can tell it's another Hacker's Haunt can't you ? I mean, the large piccy of my handsome self slapped over the top gives the game away, doesn't it ? (actually the piccy looks nothing like him, his hair comes down to his navel and the cartoon makes him look 10 years older than he really is. - Suz) And speaking of giving games away, there's a fellow called Graham Smith who should be getting a few early chrissy prezzies.

You may remember that last month we ended off with an Elven Warrior pokette, and a pokeykins for Saigon Combat Unit, sent in all the way from Brookside (isn't there something on the telly about that ?) by Graham and I said there'd be more. Well, true to my word for once, here they are, starting with classic Arcadia:

```
1 ' Classic Arcadia -tape-
2 ' By Graham Smith
3 ' Infinite lives
4 '
10 a=48640:MODE 1
20 FOR j=0 TO 63:READ a$
30 x=VAL("&"+a$):y=y+x
40 POKE j+a,x:NEXT j
50 IF y=7009 THEN CALL a
60 PRINT"data error
70 DATA 06,00,11,44,44,cd
80 DATA 77,bc,eb,cd,83,bc
90 DATA e5,cd,7a,bc,e1,3e
100 DATA 01,bc,20,08,01,af
110 DATA c2,ed,43,e9,09,e9
120 DATA 01,2c,be,ed,43,ca
130 DATA 00,0e,38,ed,43,12
140 DATA 74,e9,af,67,6f,32
150 DATA 21,54,22,22,54,c3
160 DATA 00,42,3e,b7,32,8d
170 DATA 38,c3,00,20
```

That's for the tape version, by the way. Graham checksums all his stuff, so if you can't get it right, then it's TSM YO-YO. TSM YO-YO? That's computer-speak, this is. You've probably heard of RTFM, which stands for Read The, er, Firmware Manual? Well this is the next step if you still can't get it right, and stands for Tough Stuff, Mate, You're On Your Own.

Graham is going strong on his own though, and has found his way through to writing a pokelette for Lost Caves. Hopefully though, with infinite lives, you can't really go wrong now can you? Happy potholing:

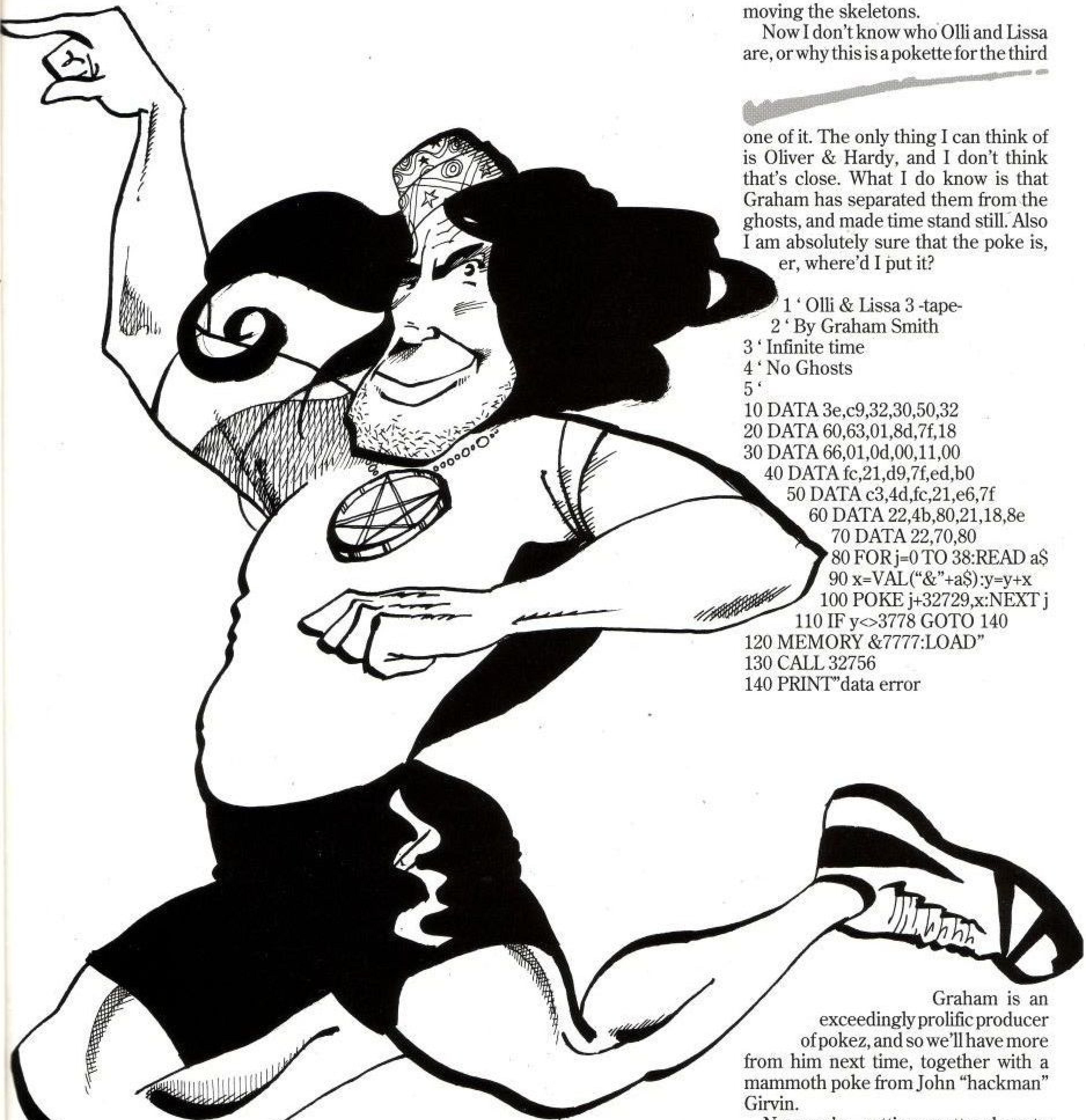
```
1 ' Lost Caves -tape-
2 ' By Graham Smith
3 ' Infinite lives
4 '
10 DATA c4,14,ac,af,32,21
20 DATA 11,fb,c9,3e,8f,32
30 DATA 7f,41,3e,b3,32,cc
40 DATA 41,21,62,46,36,92
50 DATA 2b,36,83,2b,36,df
60 DATA c3,05,40
70 FOR j=0 TO 32:READ a$
80 x=VAL("&"+a$):y=y+x
90 POKE j+48640,x:NEXT j
100 IF y<>3335 GOTO 130
110 MEMORY &3FFF:LOAD"
120 CALL 48649
130 PRINT"data error
```

A brief break from the Graham Smithery, and we'll get in touch with the untouchables. At least, David Turin of Wolverhampton has managed it, and you have to touch an awful lot of keys! First though, play Untouchables (level 1) until you have raised yourself onto the high score table. Then, type in the name HUMPHREYBOGART, and play it again, Sam. Now the tricky bit; press all the cursor keys, COPY, 0-9, . , and ENTER simultaneously and at the same time. At this point David doesn't say what happens, but you'll have a lot of fun finding out. Here's looking at you, kid.

Moving on now to the tape pokette for Dragon Spirit, and a pretty fortifying spirit it is too. Gives you infinite lives, it does. Take a hint from Bilbo Baggins: "Never laugh at a live dragon."

```
1 ' Dragon Spirit -tape-
2 ' By Graham Smith
3 ' Infinite lives
4 '
10 DATA 06,00,11,00,80,cd
20 DATA 77,bc,21,11,be,22
30 DATA 73,80,c3,00,80,af
40 DATA 32,6b,20,c3,1d,00
50 FOR j=0 TO 23:READ a$
60 x=VAL("&"+a$):y=y+x
70 POKE j+48640,x:NEXT j
80 IF y<>2091 GOTO 100
90 CALL 48640
100 PRINT"data error
```

"Igor!"
"Yeth Mathter?"
"Prepare Graham Smith's Frankenstein Junior poke."
"Yeth Mathter."
"And don't drop it this time, Igor!"
"Yeth Mathter!"



```
1 ' Frankenstein jnr.
2 ' By Graham Smith
3 ' Infinite energy
4 ' No skeletons or ghosts
5 '
10 DATA 2a,38,bd,22,23,be
20 DATA 21,37,bd,36,c3,23
30 DATA 36,1b,23,36,be,21
40 DATA 40,00,e3,11,00,bb
50 DATA c3,4a,3a,af,32,a7
60 DATA 5d,32,c0,70,cf
70 FOR j=0 TO 34:READ a$
80 x=VAL("&"+a$):y=y+x
90 POKE j+48640,x:NEXT j
100 IF y<>3368 GOTO 130
110 MEMORY 14900:LOAD"
120 CALL 48640
130 PRINT"data error
```

There you go. That poke excommunicates the ghosts, give you more energy than an Electricity Board advert promises to, and makes no bones about removing the skeletons.

Now I don't know who Olli and Lissa are, or why this is a pokette for the third one of it. The only thing I can think of is Oliver & Hardy, and I don't think that's close. What I do know is that Graham has separated them from the ghosts, and made time stand still. Also I am absolutely sure that the poke is, er, where'd I put it?

```
1 ' Olli & Lissa 3 -tape-
2 ' By Graham Smith
3 ' Infinite time
4 ' No Ghosts
5 '
10 DATA 3e,c9,32,30,50,32
20 DATA 60,63,01,8d,7f,18
30 DATA 66,01,0d,00,11,00
40 DATA fc,21,d9,7f,ed,b0
50 DATA c3,4d,fc,21,e6,7f
60 DATA 22,4b,80,21,18,8e
70 DATA 22,70,80
80 FOR j=0 TO 38:READ a$
90 x=VAL("&"+a$):y=y+x
100 POKE j+32729,x:NEXT j
110 IF y<>3778 GOTO 140
120 MEMORY &7777:LOAD"
130 CALL 32756
140 PRINT"data error
```

Graham is an exceedingly prolific producer of pokez, and so we'll have more from him next time, together with a mammoth poke from John "hackman" Girvin.

Now we're getting pretty close to Christmas, and next month is the special bumper edition with all sorts of other goodies too. It's also the first issue of the new year, so we'll take a look back at the year so far, but don't let that put you off. By then, we'll be so full of Christmas spirit, we'll probably be incapable of poking the skin off of a rice pudding. So, if you find any pokes, hits or dodges in the games in your Christmas stocking, share them with me, and I'll pass them on. The pokes, pal, not the stockings.

SOLITUDE

BY DAVID HALL

You all know the good old game of Solitaire, well, here's how to play it on the computer screen. Just use the cursor keys to jump over the pegs and see if you can get it to work out right first time around. It's not easy.



```
10 'SOLITUDE by David Hall [F1]
20 'for ACU             [F2]
30 ' -- Draw screen + set variables -- [F3]
40 GOSUB 1020:CALL &BC02:INK 14,18,9 [78]
50 SPEED INK 20,20:INK 15,0:INK 0,0 [DD]
60 BORDER 0:MODE 0:PEN 11:GOSUB 630 [E2]
70 rowx=5:rowy=5:pegs=44 [49]
80 a=92:b=304:GOSUB 1100 [0D]
90 a=6:b=64:GOSUB 1100 [50]
100 LOCATE 6,21:PRINT "SoLiTuDe":PEN 15 [0A]
110 LOCATE 5,23:PRINT "WrOnG MoVe" [A4]
120 TAG:PLOT 528,128,9 [F7]
130 PRINT CHR$(203)CHR$(204);:TAGOFF [AE]
140 PEN 8:LOCATE 3,24 [A4]
150 PRINT "Pegs left =";pegs [FF]
160 IF pegs=1 THEN GOTO 430 [22]
170 ' -- Get move 1 (FROM) -- [AF]
180 FOR pause=1 TO 200:NEXT pause [E9]
190 GOSUB 510 [92]
200 IF rowx=9 AND rowy=9 THEN 370 [E9]
210 IF a(rowx,rowy)<>1 THEN 190 [0F]
220 SOUND 1,200,3:SOUND 2,203,3:PEN 8 [F8]
230 LOCATE rowx*2,rowy*2:GOSUB 760 [6D]
240 fromx=rowx:fromy=rowy [C4]
250 ' -- Get move 2 (TO) -- [AC]
260 FOR pause=1 TO 200:NEXT pause [E6]
270 GOSUB 510 [8F]
280 IF rowx=9 AND rowy=9 THEN 370 [F9]
290 IF a(rowx,rowy)=2 THEN 310 [A8]
300 GOSUB 970:GOTO 190 [BE]
310 GOSUB 810 [A5]
320 IF flag=1 THEN GOSUB 970:GOTO 190 [9F]
330 SOUND 1,200,3:SOUND 2,203,3 [7F]
340 GOSUB 910 [B6]
350 pegs=pegs-1:GOTO 140 [2F]
360 ' -- Game Over (LOST) -- [AF]
370 SOUND 1,900:SOUND 1,800:SOUND 1,700 [62]
380 IF INKEY(47)=0 THEN 380 [34]
390 LOCATE 3,5:PEN 14:INK 3,6,3 [75]
400 PRINT "YoU          LoSe" [2A]
410 IF INKEY(47)=0 THEN RUN ELSE 410 [CB]
420 ' -- Game Over (WON) -- [A8]
430 IF a(5,5)<>1 THEN GOTO 370 [88]
440 IF INKEY(47)=0 THEN 440 [DE]
450 LOCATE 3,5:PEN 14 [1C]
460 PRINT "YoU           WON" [CB]
470 SOUND 1,RND*50,2 [18]
480 INK 3,INT(RND(1)*23)+3 [49]
490 FOR pause=1 TO 200:NEXT [10]
500 IF INKEY(47)<>0 THEN 470 ELSE RUN [89]
510 LOCATE rowx*2,rowy*2+1 [5D]
520 IF INKEY(47)=0 THEN RETURN [09]
530 PEN 12:PRINT CHR$(94) [3A]
540 LOCATE rowx*2,rowy*2+1 [63]
550 i$=INKEY$:IF i$="" THEN 550 [10]
560 PRINT " " [A0]
570 IF INKEY(0)=0 AND rowy>1 THEN rowy=rowy-1 [EB]
580 IF INKEY(2)=0 AND rowy<9 THEN rowy=rowy+1 [5B]
590 IF INKEY(8)=0 AND rowx>1 THEN rowx=rowx-1 [F4]
600 IF INKEY(1)=0 AND rowx<9 THEN rowx=rowx+1 [D3]
610 GOTO 510 [16]
620 ' -- read + print counter positions -- [AA]
630 FOR x=1 TO 9:READ c$:FOR y=1 TO 9 [DD]
640 a(x,y)=VAL(MID$(c$,y,1)) [2F]
650 LOCATE x*2,y*2 [D9]
```

```
660 IF a(x,y)=2 THEN GOSUB 730 [6E]
670 IF a(x,y)=1 THEN GOSUB 750 [9B]
680 NEXT y,x:RETURN [4C]
690 DATA 000111000,000111000,000111000 [BE]
700 DATA 111111111,111121111,111111111 [75]
710 DATA 000111000,000111000,000111000 [AF]
720 ' -- print a hole -- [AB]
730 PEN 8:PRINT CHR$(202):RETURN [02]
740 ' -- print a peg -- [AF]
750 PEN 3 [4C]
760 PRINT CHR$(22)CHR$(1); [3B]
770 PRINT CHR$(200)CHR$(8); [91]
780 PEN 4:PRINT CHR$(201) [92]
790 PRINT CHR$(22)CHR$(0):RETURN [49]
800 ' -- Check if move is valid -- [A8]
810 flag=1 [7E]
820 IF fromx=rowx AND fromy=rowy+2 THEN flag=0 [A5]
830 IF fromx=rowx AND fromy=rowy-2 THEN flag=0 [E9]
840 IF fromy=rowy AND fromx=rowx-2 THEN flag=0 [CD]
850 IF fromy=rowy AND fromx=rowx+2 THEN flag=0 [8D]
860 takey=fromy+((rowy-fromy)/2) [06]
870 takex=fromx+((rowx-fromx)/2) [BE]
880 IF a(takex,takey)=2 THEN flag=1 [A7]
890 RETURN [D4]
900 ' -- move counters -- [A9]
910 LOCATE fromx*2,fromy*2:GOSUB 730 [6B]
920 LOCATE rowx*2,rowy*2:GOSUB 750 [51]
930 LOCATE takex*2,takey*2:GOSUB 730 [2D]
940 a(fromx,fromy)=2:a(rowx,rowy)=1 [26]
950 a(takex,takey)=2:RETURN [66]
960 ' -- wrong move -- [B5]
970 INK 15,26,0:SOUND 1,100 [4E]
980 LOCATE fromx*2,fromy*2:GOSUB 750 [BF]
990 FOR pause=1 TO 2000:NEXT pause [9A]
1000 INK 15,0:RETURN [E8]
1010 ' -- Define Graphics -- [84]
1020 SYMBOL AFTER 33 [B0]
1030 SYMBOL 200,124,222,190,190,254,254,254,124 [7D]
1040 SYMBOL 201,0,32,64,64,0,0,0,0 [7E]
1050 SYMBOL 202,0,0,24,36,36,24,0,0 [16]
1060 SYMBOL 203,112,136,138,138,170,146,107,0 [83]
1070 SYMBOL 204,7,2,146,130,146,146,82,0 [66]
1080 RETURN [73]
1090 ' -- draw box -- [9C]
1100 PLOT 0,a:FOR loop=1 TO 2 [DD]
1110 DRAWR 600,0,6:DRAWR 0,b [16]
1120 DRAWR -600,0,10:DRAWR 0,-b [62]
1130 MOVER 4,2:NEXT loop:RETURN [86]
```



DICE

BY STEPHEN BATTEY

Dice is the name and dice is the game for two players. You both start off with five lines and by pressing the space bar you can compete for those lives by getting the highest score. Just hope that Lady Luck isn't smiling on your opponent or you could be in for a very bad time indeed.

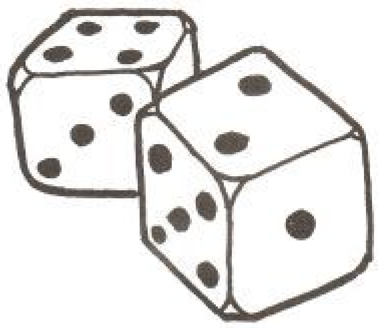
```
10 ' That game with the dice
20 ' Sounds like Yetachi
30 ' or is that a japanease company
40 ' or is that Hitachi
50 ' Anyway.By S.battey I think
60 ' or is it me
70 MODE 1:BORDER 0:INK 0,0:PAPER 0:PEN 1:CLS:INK 1,24:INK 2,20:INK 3,26
80 LOCATE 3,3:PRINT"THE GAME WITH DICE  BY S.BATTEY"
90 LOCATE 3,6:PRINT"You and your opponents have 4 dice."
100 LOCATE 1,7:PRINT"Press space to roll them.The 4 faces"
110 LOCATE 1,8:PRINT" one from each die are totaled to give"
120 LOCATE 1,9:PRINT"you your score.The player with the "
130 LOCATE 1,10:PRINT"highest score wins...PRESS SPACE......."
200 WHILE INKEY(47)<>0:WEND
210 MODE 1:PEN 3
```

```
220 LOCATE 3,3:PRINT"HOW MANY PLAYERS ?":PEN 2
230 LOCATE 7,6:PRINT"ENTER 2 or 3"
240 a$=INKEY$:IF a$="" THEN GOTO 240
250 IF a$="2" THEN GOTO 290
260 IF a$="3" THEN GOTO 300
270 GOTO 240
290 p=2:GOTO 310
300 p=3
310 MODE 1:li=5:liv=5:IF p=3 THEN l=5 ELSE l=0
315 MODE 1
320 PEN 2:LOCATE 1,1:PRINT"PLAYER 1: ";li
330 LOCATE 1,2:PRINT"PLAYER 2: ";liv
340 IF p=2 THEN GOTO 360 ELSE 350
350 LOCATE 1,3:PRINT"PLAYER 3: ";l
360 WINDOW 1,40,5,25:CLS
370 PEN 1:LOCATE 1,1:PRINT"ROLL THE DICE"
375 WHILE INKEY(47)<>0:WEND
380 a=INT(RND*7):b=INT(RND*7):c=INT(RND*7):d=INT(RND*7)
390 playt=a+b+c+d:IF a=0 OR b=0 OR c=0 OR d=0 THEN GOTO 380 ELSE 400
400 LOCATE 36,4:PRINT playt:PEN 0:PAPER 3
410 x=7:y=4:GOSUB 860
420 x=12:y=4:GOSUB 930
430 x=17:y=4:GOSUB 1010
435 x=22:y=4:GOSUB 1081:PAPER 0:PEN 1
440 WHILE INKEY(47)<>0:WEND
450 a=INT(RND*7):b=INT(RND*7):c=INT(RND*7):d=INT(RND*7)
460 IF a=0 OR b=0 OR c=0 OR d=0 THEN GOTO 450 ELSE 470
470 plat=a+b+c+d
480 LOCATE 36,9:PRINT plat:PEN 0:PAPER 3
490 x=7:y=9:GOSUB 860
500 x=12:y=9:GOSUB 930
510 x=17:y=9:GOSUB 1010
515 x=22:y=9:GOSUB 1081:PAPER 0:PEN 1
520 IF p=2 THEN 525 ELSE 610
525 FOR delay=1 TO 4000:NEXT delay
530 IF plat>playt THEN 590
540 IF plat<playt THEN 600
550 IF plat=playt THEN 560
560 FOR delay=1 TO 4000:NEXT delay
570 LOCATE 1,1:PRINT"DRAW.. REPLAY.. ROLL THE DICE"
580 GOTO 375
590 li=li-1:liv=liv+1:IF li<1 THEN GOTO 820 ELSE 605
600 li=li+1:liv=liv-1:IF liv<1 THEN GOTO 800 ELSE 605
605 FOR delay=1 TO 4000:NEXT delay:GOTO 315
610 WHILE INKEY(47)<>0:WEND
620 a=INT(RND*7):b=INT(RND*7):c=INT(RND*7):d=INT(RND*7)
630 IF a=0 OR b=0 OR c=0 OR d=0 THEN GOTO 620 ELSE 640
640 pla=a+b+c+d
650 LOCATE 36,14:PRINT pla:PEN 0:PAPER 3
660 x=7:y=14:GOSUB 860
670 x=12:y=14:GOSUB 930
680 x=17:y=14:GOSUB 1010
685 x=22:y=14:GOSUB 1081:PAPER 0:PEN 1
690 IF plat>playt AND plat>pla THEN GOTO 730
700 IF playt>plat AND playt>pla THEN GOTO 740
710 IF pla>plat AND pla>playt THEN GOTO 750
720 GOTO 560
730 liv=liv+2:li=li-1:l=l-1:GOTO 760
740 li=li+2:liv=liv-1:l=l-1:GOTO 760
750 l=l+2:liv=liv-1:li=li-1
760 IF liv<1 THEN GOTO 800
770 IF li<1 THEN GOTO 820
780 IF l<1 THEN GOTO 840
790 FOR delay=1 TO 4000:NEXT delay:GOTO 315
800 CLS:MODE 1:PEN 3:LOCATE 3,3:PRINT"PLAYER 2 is dead."
801 IF p=2 THEN win$=" PLAYER 1 WINS "
802 IF p=3 THEN GOTO 803 ELSE 810
803 IF li>l THEN win$=" PLAYER 1 WINS "
804 IF l>li THEN win$=" PLAYER 3 WINS "
805 IF l=li THEN win$=" THERE IS A DRAW "
810 GOTO 850
```



```
820 CLS:MODE 1:PEN 3:LOCATE 3,3:PRINT"PLAYER 1 is dead."
821 IF p=2 THEN win$=" PLAYER 2 WINS "
822 IF p=3 THEN GOTO 823 ELSE 810
823 IF l>liv THEN win$=" PLAYER 3 WINS "
824 IF liv>l THEN win$=" PLAYER 2 WINS "
830 GOTO 850
840 CLS:MODE 1:PEN 3:LOCATE 3,3:PRINT"PLAYER 3 is dead."
841 IF li>liv THEN win$=" PLAYER 1 WINS "
842 IF liv>li THEN win$=" PLAYER 2 WINS "
850 LOCATE 7,7:PRINT"PLAYER 1 has";li;"lives"
851 LOCATE 7,9:PRINT"PLAYER 2 has";liv;"lives"
852 LOCATE 7,11:PRINT"PLAYER 3 has";l;"lives"
853 LOCATE 7,15:PRINT win$
854 FOR delay=1 TO 6000:NEXT delay
856 GOTO 10
860 REM draw
865 IF a=1 THEN GOSUB 1090
870 IF a=2 THEN GOSUB 1130
880 IF a=3 THEN GOSUB 1170
890 IF a=4 THEN GOSUB 1220
900 IF a=5 THEN GOSUB 1280
910 IF a=6 THEN GOSUB 1310
920 RETURN
930 REM draw
940 IF b=1 THEN GOSUB 1090
950 IF b=2 THEN GOSUB 1130
960 IF b=3 THEN GOSUB 1170
970 IF b=4 THEN GOSUB 1220
980 IF b=5 THEN GOSUB 1280
990 IF b=6 THEN GOSUB 1310
1000 RETURN
1010 REM draw
1020 IF c=1 THEN GOSUB 1090
1030 IF c=2 THEN GOSUB 1130
1040 IF c=3 THEN GOSUB 1170
1050 IF c=4 THEN GOSUB 1220
1060 IF c=5 THEN GOSUB 1280
1070 IF c=6 THEN GOSUB 1310
1080 RETURN
1081 REM draw
1082 IF d=1 THEN GOSUB 1090
1083 IF d=2 THEN GOSUB 1130
1084 IF d=3 THEN GOSUB 1170
1085 IF d=4 THEN GOSUB 1220
1086 IF d=5 THEN GOSUB 1280
1087 IF d=6 THEN GOSUB 1310
1088 RETURN
1090 REM 1
1095 FOR q=y-1 TO y+1:LOCATE x-1,q:PRINT"   ":NEXT
1120 LOCATE x,y:PRINT CHR$(231):RETURN
1130 REM 2
1140 FOR q=y-1 TO y+1:LOCATE x-1,q:PRINT"   ":NEXT
1150 LOCATE x+1,y-1:PRINT CHR$(231)
1160 LOCATE x-1,y+1:PRINT CHR$(231):RETURN
1170 REM 3
1180 FOR q=y-1 TO y+1:LOCATE x-1,q:PRINT"   ":NEXT
1190 LOCATE x-1,y-1:PRINT CHR$(231)
1200 LOCATE x+1,y+1:PRINT CHR$(231)
1210 LOCATE x,y:PRINT CHR$(231):RETURN
1220 REM 4
1230 FOR q=y-1 TO y+1:LOCATE x-1,q:PRINT"   ":NEXT
1240 LOCATE x-1,y-1:PRINT CHR$(231)
1250 LOCATE x-1,y+1:PRINT CHR$(231)
1260 LOCATE x+1,y-1:PRINT CHR$(231)
1270 LOCATE x+1,y+1:PRINT CHR$(231):RETURN
1280 REM 5
1290 GOSUB 1220
1300 LOCATE x,y:PRINT CHR$(231):RETURN
1310 REM 6
1320 GOSUB 1220
1330 LOCATE x-1,y:PRINT CHR$(231)
1340 LOCATE x+1,y:PRINT CHR$(231):RETURN
```





PD Scene

PD Maestro Paul Tint, guides you through the heady world of Public Domain Libraries in a brand new series.

There are many good games and utilities available for the Amstrad CPC, but, they don't come cheap. You can expect to pay up to £15 for a disk game, and between £20 and £50 for a good word processor! So, are there no cheaper alternatives?

Well, it so happens that there are. If I told you that there is a wealth of games and utilities available to everybody, for absolutely nothing, would you believe me? You would, that's great, how trusting you are! Actually, I was telling a fib. Although the programs themselves are free, you do have to pay a small copying charge, but usually this is minimal.

So, what are these programs? are they any good? and where can I get them? OK, one question at a time. Firstly, these programs are in the Public Domain sector, which means they can be freely copied by anyone as long as they are not altered or sold for profit. Secondly, yes, most of them are good (although like commercial programs, there are some real stinkers). Thirdly, read on.

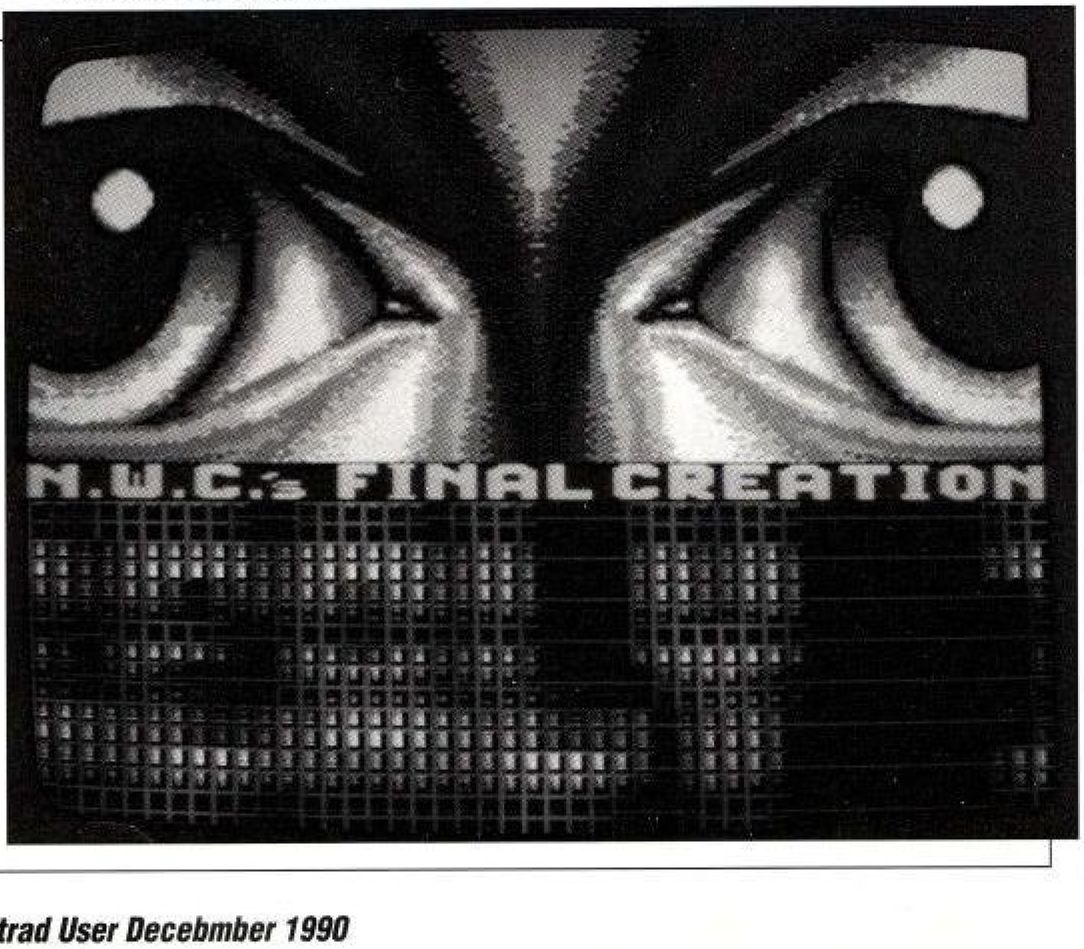
If you have a quick glance at the "where to go" box, you will see the name of a PD library. This is the place you will need to write to to get some software. Every month, I will be reviewing some of the best PD software, and the "Where to go" box will increase in size to cover the best of the libraries.

So, the introduction's over. Let's get stuck into some software. This first lot comes from...

SCULL PD

Scull Public Domain Software Library (to give it its full name) claims to have the largest range of PD software in the UK. Is it true? I hear you cry. Probably. Although the library was only formed in January of this year, Alan Scully (the proprietor of Scull) has accumulated over 12 MegaBytes of software, with more to follow, and even writes some of it himself.

NWC's Final Creation



For example, Alan has written a game called MAC II which is a 300 screen maze game. The features of the game include multi-colour sprites, 10 levels and even a level designer. Although the game is writtten mostly in Basic, it plays as if it was written in machine code. My only grumble is that the flick screen maze is rather annoying, but once you get used to it, the game s quite fun! It is certainly good enough to be included in my disk collection.

Alan not only writes games though. some of his other creations include Advanced Text Editor, PageMaker, Mini-Artist, and Data System. All of these are of high quality and if you are looking for your first word-processor, or whatever, I can certainly recommend them.

Amongst the other programs in this disk are some superb demos from Denmark and the rest of Europe. Demos are, to put it bluntly, useless. So, why does Scull have over 25 disks of them? Well, they may be useless, but they are graphically stunning.

The Danish programmers have perfected the art of producing demos that stretch your CPC to the limits. Demo groups like NWC, Thronesoft, and CBS! compete with each other trying to produce demo's that no one else can better. The result? Demo's that are of Amiga standard. They really are good.

Alan's favourite demo's are NWC FINAL CREATION, REMIX-I, and TOM & JERRY 8. I must say, I wholeheartedly agree with him. The demos in Scull are brilliant. In all the six years I've had my CPC, I have never seen anything like them.. Just take a look at the screen shots to see how good they look. These programs should be in every master collection.

If you wish to receive some of the Scull software then their address and details on how to order can be found in the "where to go" box

WHERE TO GO

Scull PD Library. This newly formed Scottish PD library claims to have largest range of PD in the UK. To sample their wares, just send 50p, a disk, and an SSAE. The address is Scull PD Library, 119 Laurel Drive, East Kilbride, Glasgow G75 9JG.

GET IN TOUCH

If you run a PD library and want some free publicity then send a disk with a selection of your stock list to me c/o ACU. If you wish your disk returned then enclose an SAE.



Rage
ON SALE OCTOBER 24, ASK FOR IT BY NAME
flying in a Rage
falling onto the world
Parrot stretched
and uncurled.
from the cage
Escape and Rage.
A steal at only 65p twice a month, Rage is the *only* magazine with a bite the size of a Sumo wrestler. Loaded with exclusive interviews including the most up to date Betty Boo story, packed full of news, reviews AND intimate details of your favourite stars. We've also got brilliant competitions, record and film reviews, and the latest raves from around the country.
To celebrate our first ever issue we're giving away a free compilation cassette with the hottest tracks of the nineties from The Soup Dragons, De La Soul, Blue Pearl and a whole lot more.
news
REVIEWS
competitions
EXCLUSIVE
WARNING
this magazine BITES

Board Games



The Doc takes another flick through the Maxwell House Files by Popular Demand

Hello again, advisers and advisees. Since we've had such positive feedback over the last time we published a selection of the applications chatter from Maxwell House, we've decided to make a regular occurence of it. Sit back and read through the compiled thoughts from a ten day period in September, and while you're about it, look at what you're missing if you don't log on!!

Msg # 22 of 29Date: Tue 21/08/90, 6:15
From: GAZZER Read: 20 times [1 Reply]
Forwarded From: Bulletins
Subject: DRIVE PROBLEM

Some years ago I purchased a Amstrad CPC 464, I wish to purchase a Disk Drive but I'm having problems choosing one, please could someone who has the same problems as me perhaps give me some solutions.

Msg # 24 of 29Date: Fri 24/08/90, 22:00
From: BRIAN GAFF Read: 18 times
Reply-To: BOB ELMES, "CPC VIEWDATA"
Subject: Re: CPC VIEWDATA

I thought The Cage ROM was THE terminal for the CPC?

BG

Msg # 26 of 29Date: Mon 3/09/90, 16:25
From: MALCOLM ARNOLD Read: 11 times
Reply-To: GAZZER, "DRIVE PROBLEM"
Subject: Re: DRIVE PROBLEM

Hi... I added a 5.25" drive to my 6128 as a second drive. It gave me nearly 800k under RAMDOS. I'm not sure whether the same drive would be compatible with your machine, but I would have thought so. Also there are 3.5" options for CPCs giving the same sort of capacity... Your best bet is to ask about this in the Amstrad message area for specific makes....

MAL.

Msg # 45 of 67Date: Mon 13/08/90, 17:44
From: TIMOTHY GILES Read: 18 times [1 Reply]
Subject: ZMP.COM

Dear however can help me,

When ever I try to use ZMP.COM it will never work,how do I use it.Do I use C/PM with it,etc...

Please any one out there who could help me please, please do.

Msg # 46 of 67Date: Tue 14/08/90, 1:15
From: SEBASTIAN TOMBS Read: 17 times
Reply-To: TIMOTHY GILES, "ZMP.COM"
Subject: ZMP

Yes. ZMP runs under CP/M. Firstly it has to be configured for your machine, though if you have the CPC version and you are running it on a CPC there's no need.

At the CP/M prompt 'A>', 'B>' or whatever type 'ZMP' plus a carriage return/enter. Providing ZMP is on the appropriate disk, it should run. Once it's running (i.e. 'Ready has appeared half-way down the screen on the far left) press the ESCAPE key followed by the 'H'. This will bring up the help screen.

ST

Msg # 48 of 67Date: Fri 17/08/90, 22:36
From: JOHN PRIESTLEY Read: 23 times
Subject: CPC 464+/6128+

I notice a bit of a talk about the 464+ and 6128+ the so called better machine with cardridge and more colours on screen BUT no expansion port for peripherals. The 464+ with built in cassette recorder but can't add a disc drive cos of slight difference in the design of the hardware.

Where was ACUs article on it?

David Dorn, do you remember me saying this on the CAGE PAGE on micronet in January but Amstrad PLC didnt mention if the rumour of this was true or not.

Well I'm sticking to my good old 464. Never had a days trouble since I bought it in 1984.

Even got my name in the mag on application advice. Fame at last hehehee. John

(As it happens, yes, John did spill all he knew on the Cage early in the year. As it also happens, we couldn't get anything like confirmation on the design, and so could say nothing. I think you'll have seen our articles by now, John!! DD)

Msg # 51 of 67Date: Wed 22/08/90, 20:34
From: IAN SOMERVILLE Read: 18 times
Subject: re MEX

I am using MEX at this moment and as yet have not experienced any UP/down loading probs. The commands to use are R and S but first you have to exit from terminal mode using (control) [E (three keys on the CPC) The prog asks for the protocol use XMODEM which is the Ward Christianson with CRC error checking. The screen advises the number of blocks and approx up/down load time. So far no problems if you need any more help ask and you shall receive. Ian Somerville

Msg # 53 of 67Date: Thu 23/08/90, 18:02
From: ERIC JAN VD BOGAARD Read: 17 times
Reply-To: CHRIS PENDSE, "Honeyview"
Subject: direct command

Or you use CTRL Q you then type the AT command as normal and ENTER to define keys add ^M

Msg # 55 of 67Date: Sat 25/08/90, 22:05
From: CHRISTOPHER SMITH Read: 17 times [1 Reply]
Reply-To: JOHN PRIESTLEY, "Honey Soft HS-S1"
Subject: Honey Soft HS-S1

The HS-S1 software is available from Cirkit , as I use the HS-S1 myself. It costs #5.22 on tape, or #8.96 on disc (this is from the Summer 1988 catalogue so it's probably out of date by now), and the stock numbers are 41-032056.. sorry, 41-03205.. 41-03206 and 41-03207 respectively I hope this helps, ...Chris

Msg # 56 of 67Date: Sun 26/08/90, 21:43

From: JOHN PRIESTLEY Read: 16 times [1 Reply]
Reply-To: CHRISTOPHER SMITH, "Honey Soft HS-S1"
Subject: Honeysoft HS-S1
Ive already got it on rom, All I wanted to know is is it the same as honeyterm commands. You see a friend gave me the rom cos he couldnt work it out.

John

Msg # 57 of 67Date: Mon 27/08/ 90, 21:42
From: CHRISTOPHER SMITH Read: 14 times [1 Reply]
Reply-To: JOHN PRIESTLEY, "Honeysoft HS-S1"
Subject: Honeysoft HS-S1
I didn't know they did it on ROM, but I'll give you a list of the cRSX commands as according to my disc manual:

|SIO.OPEN,<channel>,[<baudrate> [,<flow> [,<databits> [,<parity> [,<sto@pbits> [,<rx baudrate>]]]]]]
|SIO.CLOSE [,<channel>]
ISIO.ERROR, @<error>%
|SIO.TIMEOUT, <time> [,channel]
|SIO.STATUS, @<status>% [,<channel>]
ISIO.BREAK, <duration> [,<channel>]
|SIO.PUT, <char> [,<channel>]
ISIO.WRITE, <string> [,<channel>]
ISIO.WRITE, @<char>% [,<channel>]
|SIO.GET, @<char>% [,<channel>]
|SIO.READ, <string> [,<channel>]
|SIO>.READ, @<char>% [,<channel>]
|SIO.NULL, <nulls> [,<channel>]
ISIO.COUNT, @<count>% [,<channel>]
|SIO.FILETYPE, <type> [,<channel>]
|SIO.SEND, <filename> [,<channel>]
|SIO.RECIEVE, <filenMe> [,<channel>]
|SIO.TERMINAL, <mode> [,<channel>]4
|SIO.PRINT, <device>

If these are the right ones, tell me and I'll upload a 'manual ' for you in the CPC files area.

Chris.

Msg # 60 of 67Date: Tue 28/08/ 90, 17:00
From: ALASTAIR STARK Read: 16 times
Reply-To: TONY CHARLES, "HELP!!!"
Subject: reply to reply to help!!
I think you've done it! Thanks.

The only trouble is that I don't think that Prestel will operate on 1200/1200. However there is a direct command which will allow you to change the speed of the modem, without the computer changing its mode which I have successfully used once or twice.

Alastair

(Whoops!! Alastair managed to get a touch confused here. Prestel WILL run at 1200/1200. DD)

Msg # 61 of 67Date: Mon 27/08/ 90, 15:42
From: BOB ELMES Read: 19 times
Forwarded From: DAVID DORN
Subject: Amstrad Computer User, Comms section.
I was wondering if in Amstrad Computer User, in the comms section you could have a listing so that you could use an Amstrad CPC as a Bulletin Board. I know that there are many different Serial interfaces for the Amstrad, each with different commands, but the most commen set up is with the "Amstrad RS232 by Pace".

I ask as I want to set up a BBS, but I won't be able to get a PC for some time yet and would like to use my CPC in the mean time.

From Bob Elmes....................

(How about I get my Bruvver to do an article on this for his comms column?? DD)

Msg # 62 of 67Date: Fri 31/08/ 90, 21:05
From: JOHN PRIESTLEY Read: 21 times [1 Reply]
Reply-To: CHRISTOPHER SMITH, "Honeysoft HS-S1"
Subject: HS-S1
They are the right commands. Ill try them later. A 'manual' would be useful.

John

Msg # 128 of 143Date: Sat 1/09/ 90, 20:26
From: ERIC JAN VD BOGAARD Read: 22 times [1 Reply]
Subject: discfind could somebody help me with the prog. "DISCFIND" from ACU (july) the commands are accepted the discdrive works, but there are no-readings on the screen, when the commands |asc & |hex are used.

Msg # 129 of 143Date: Sun 2/09/ 90, 1:49
From: TOM IREI Read: 28 times [1 Reply]
Subject: ZMP software
I'm having problems with ZMP which seems very satisfactory with the single exception (so far) that I can't seem to get the xfer protocol to download a file using Zmodem or even Xmodem: has anyone else experienced this kind of problem or am I just a bimbo and have missed the point ?

I thought it was just a case of typing [esc] [R] ; but the screen just sits there and nothing seems to activate the xfer.

Oh, well. You're only as fast as your microprocessor, so that makes me just an eight bit punk.

Such is life. Regards, T.I.

Msg # 130 of 143Date: Mon 3/09/ 90, 6:32
From: GEORGE HO-YOW Read: 28 times [1 Reply]
Reply-To: ERIC JAN VD BOGAARD, "discfind"
Subject: discfind
I havent tried this prog as yet, but I suspect you need to use upper case characters. ie |ASC and |HEX.

Msg # 132 of 143Date: Mon 3/09/ 90, 23:57
From: SEBASTIAN TOMBS Read: 28 times
Reply-To: TOM IREI, "ZMP software"
Subject: Re: ZMP software
Under Zmodem transfer, transfer should start automatically when downloading because the transfer overlay is loaded and executed when the start-of-message block is received. For any other protocol, it should be (to use your notation) [esc] [R] which prompts for protocol followed by your selection [A] ASCII, [X] Xmodem, [Y] Ymodem, and [Z] (you guessed) Zmodem. If you're not getting the prompt, something's almost certainly wrong with your configuration, or the overlay that you've used for your system functions.
ST

Msg # 133 of 143Date: Wed 5/09/ 90, 5:21
From: GEORGE HO-YOW Read: 20 times
Reply-To: GEORGE HO-YOW, "discfind"
Subject: disfind again
I've typed up the disfind prog in July' ACU and either made a typo somewhere, or think that there are two bytes missing somwhere. Anyway there is no need to type |hex or |asc in upper case, as the RSX routine at &BCD1 will work with either upper or lower case chars. So far after altering the xsum to run the prog I get: Enter String. After enterring a few chars , a banner comes up on the screen, and the prog locks up. Ah well! Back to the drawing board.

Msg # 135 of 143Date: Sun 2/09/ 90, 17:11
From: ANTHONY COPE Read: 22 times
Forwarded From: Bulletins
Subject: Hello
I must say your BBS is working better than last time i came on. Nice one! When are you going to publish the rest of the BBS list?

Goodbye

How to be a smoothie

AJ puts on his best suit and tries to chat up the firmware. Will he succeed?

Hi there! Well, I made it back from my motorbiking excursion through Wales without falling off, so it's only fair that I keep my side of the bargain we made last month and exlore how to be a smoothie when it comes to graphics.

Cast your mind back to last month, and you will probably remember that we managed to achieve a small bouncing star on the screen. It might not have seemed much, but it was our first piece of moving computer animation. It was just a bit jerky, that's all. The reason for the jerky-ness was simple: we were moving it in steps that were just too large.

Here's a nice mental image to help you get a feel for what's happening. Imagine you have a video camera that can take a series of frames, one at a time. The camera is trained on your kitchen table, on which there is a box of matches. (Remember kids, always make sure you have permission before you play with matches. Borrowing the video camera is probably ok, but accidentally setting fire to the house definitely isn't).

Now let's start making a film. The first frame is taken, then the box of matches is moved 10cm to the left. The next frame is taken and so forth, until the matches have fallen off the table. Now rewind and watch the film. Jerky, isn't it?

If we were to remake the film, but moved the box of matches 1cm each time, the film would be a lot smoother, woudn't it? And this is how we solve the problem of the jerky graphics.

In last month's example, the star was positioned using the normal text cursor positioning firmware. This meant that we were working in a grid of about 40 across by 25 down. Chunky!

By using the graphics firmware instead, we should be able to position the ball to within a pixel's width. By doing so, we'll have created the smoothest movement possible.

Try typing the listing into your assembler and running it. The program is a direct conversion from last month's so it should look familiar. The biggest change is the use of register pairs to hold the X and Y co-ordinates and directions instead of single registers. We have to do this because the firmware calls GraWrChar and MoveAbs require us to do so. This makes sense, because they may need numbers greater than 255 – the largest number a single register can hold.

The use of 16 bit numbers makes some of our sums that little bit more tricky. Take the code in the routine 'boing' as an example. Now, I was in such a hurry to take my hols last month that I didn't get time to properly explain how or what the routine does. So I'll do it now if you don't mind.

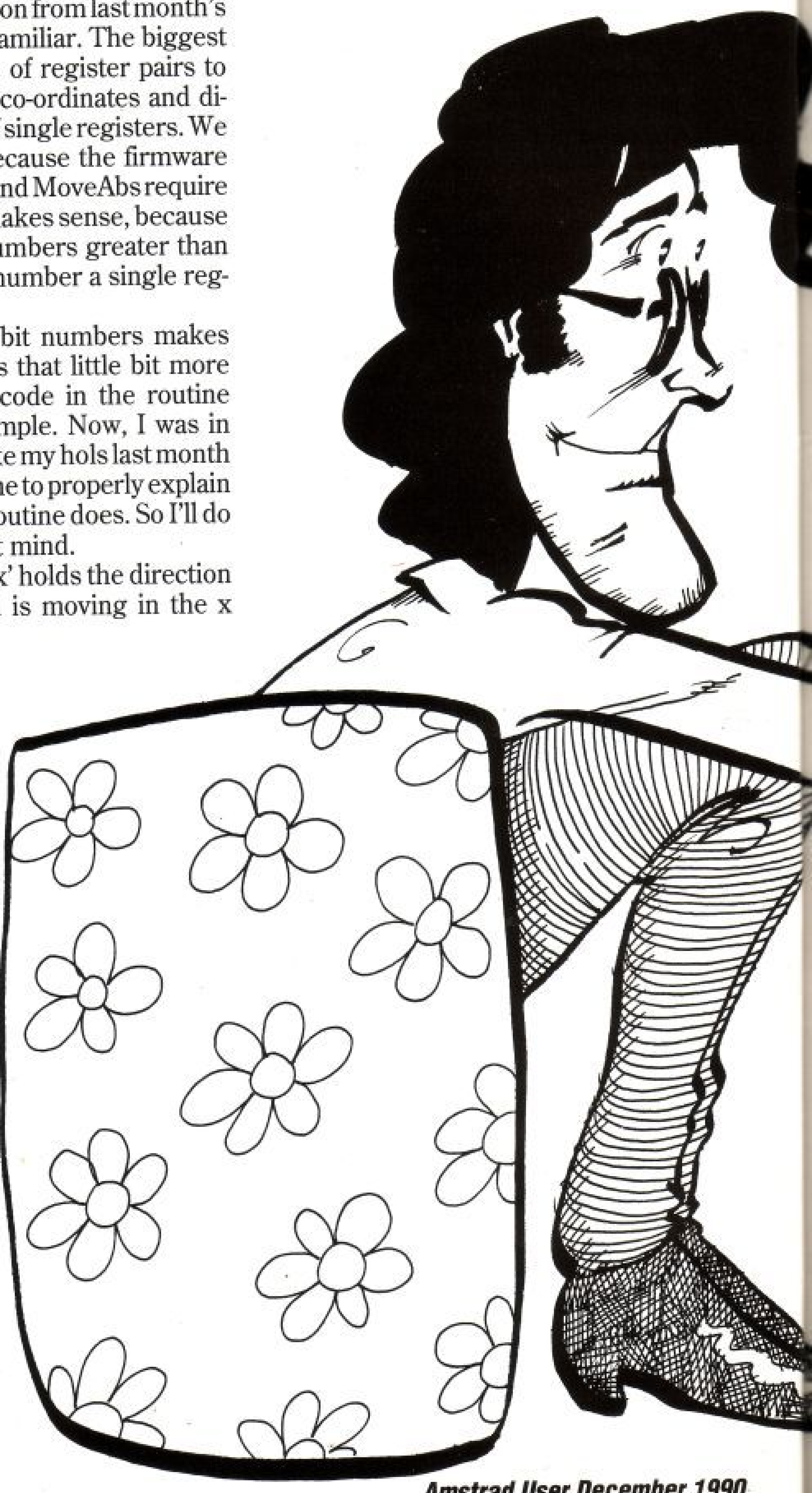
The variable 'dx' holds the direction in which the ball is moving in the x direction. If it is one, the ball is moving to the right. If it is minus one, it is moving to the left. Somehow our program needs to change the -1 to a 1 and vice versa at the right moments.

Finding 'the right moments' is easy: They occur just at the edge of the screen. Using a text screen (like we did last month) the edges are a co-ordinates 1 and 4. In a graphics screen they are much higher, because of the improved resolution.

Changing the -1 to a 1 and so forth could have been done with a piece of code which in BASIC goes something like:

IF dx=-1 then dx=1 else dx=-1

In machine code this would mean



lots of checking and jumping around. Instead I used a cunning method that relies on the way numbers are stored internally. As we discussed many moons ago, the values can be treated as 8 bits of binary data: or a row of 8 ones or zeros. You may wonder how the computer can store a negative number with only space for 1's or 0's. This is a good question.

Basically it cheats, and decides on a set of rules so it knows whether or not the number is positive or negative.

The rule works like this:

'To turn a positive number into a negative number, turn all the 1's to 0's and all the 0's to 1's. Then add 1 to the new number.

The reason why this works is all to do with 2's. Complement arithmetic. I can't be bothered to explain it all here, so if you are interested ask your maths or computer science teacher what it's all about. He or she will only be too happy to explain, as they will think you are taking a real interest in your studies.

So that's what the code in 'boing' does. There is a slight complication in that we are dealing with 16 bit numbers in this month's listing, so we have to change ALL the bits from 1's to 0's and add 1 to the whole lot. In other words we have to change both the H register and the L register individually.

When watching the program move your little star around the screen, a thought may strike you: it's a bit on the slow side. Although we have solved the jerk problem, we've come across another one. How can we speed it up?

Here's a little trick that might make a difference. Change the program to print a full-stop instead of a star, by changing the number 42 in the PrintBall routine to 46. Now remove the line 'Call EraseBall' from the listing and re-assemble it.

Now the shape of the full-stop with all the blank spaces around it will automatically erase itself as it moves along. If you doubt, try changing the full-stop back into a star and watching the trails it leaves behind.



```
The listing
org & 800

Mode equ &BCOE
GraWrChar &BBFC
MoveAbs & BBCCO
TestKey equ &BB1E
Frame equ %BD19

        ld a,1
        call Mode

loop

        call PrintBall
        call Frame

        call EraseBall
        call MoveBall

        ld a,47
        call TestKey
        jr z, loop

MoveBall
        ld hl, (ballx)
        ld de,(dx)
        add hl, de
        ld (ballx), hl

        ld a,1
        cp 1
        jr z, boing
        cp 200
        ret nz

boing

        ld hl, (dx)
        ld, a,h
        xor 255
        ld h,a
        ld l,a
        xor 255
        add 1
        ld l,a
        ld (dx), hl
        ret

PrintBall
        ld de,(ballx)
        le hl, (bally)
        call MoveAbs
        ld a,42
        call GrWrChar
        ret

EraseBall
        ld de, (ballx)
        ld hl, (bally)
        call MoveAbs
        ld a,32
        call GrWrChar
        ret

ballx dw 1
bally dw 100
dx dw 1
dy dw 1
```

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Greetings, fellow Arthur Minute lookalikes. I trust you are all keeping well, and keeping the phone lines buzzing and the bills low? You are? Good! Oh. by the way, that little quip yours truly made about lemonade in Irish pubs?? Got strangled at the typesetters, so I hear, either that or it was lost on our beloved editor. Fact is, it referred to ice cubes, as in 'why don't you get ice cubes in your lemonade in an Irish pub? - Cos they've lost the recipe'. All due apologies to the Irish, of course.

Ah, well, never mind the frivolity,

what about these here fast modems, and are they any use to us poor CPC users? Well, that depends. It depends on exactly HOW fast they are, for starters, and also what else they offer. Cast your mind back a few months, and you'll remember we talked about those V numbers.

You'll see V32, V32bis, and V42, all of which are faster than greased weasel poop - we're talking seriously fast here, with data throughputs in excess of one kilobyte per second, which is at least as fast as a 464 tape drive on a good day. How do they do that when they all work at a nominal 9600 bits per second? Well, it's not too difficult to imagine.

They tend to be used in conjunction with a little sweetie known as MNP, which stands for Microcom Networking Protocol, and comes in ten flavours. These flavours are called Levels, and are designed to make comms a little bit more secure, and a little bit faster - an explanation is in order here, methinks.

Up to level 4, MNP is an error checking system - a bit like Xmodem, except that it works on each byte that you push through your modem. If the byte gets to the other end, and the receiving modem sees it isn't right, it gets sent again until it IS right. Thus, as you sit clattering away online, it's as if you were involved in one long file transfer, and you shouldn't get any strange and weird characters on your screen due to line noise. MNP levels 2 and 4 screen it all out.

Level 5, however, introduces a bonus - real time compression. It allows you to talk to your modem faster than the modem talks to the other end. It can pack nearly twice as much information into a 2400bps link than straight talking will. In other words, you can have your CPC set up to talk to the modem at 4800bps, and the other end set up to do the same, and yet use a 2400bps modem to modem link. Think about that for a moment.

It's like you've got a big, squishy cushion that you want to send to your aunt in Blackpool. You can nip out and find a big bag to put it in, and send it through the parcel post at its full size, or, you can get a much smaller and stronger bag, and squash the cushion down to fit inside it, and send it letter post, which is faster than parcel post. Get the drift?

Almost every piece of data that passes down your RS232C can be squashed in some way. It may be that you type five characters that are all the same. Fine, that can be sent as three characters - one to say there's a squashed chunk coming, one to say how many characters there are, and one to define the character. The same sequence could be used to send a hundred characters in a three character sequence - which is quite a saving.

MNP level 5 does this kind of thing to your data, both sent and received, nominally making a 2400bps link work at 4800bps. That's not at all bad. There is a down side though, and it has to do with our beloved Arnolds. Unfortunately, the serial interfaces that are available for the beast aren't all the same, and only certain ones - the Pace variants - can handle super-fast speeds. What's worse, a lot of the comms packages around (non CP/M ones, usually) have problems handling the kind of speeds we're talking about. Certainly, I've never been able to drive a MNP 5 V32 modem at the 19200bps it really needs to get the best out of it successfully from a CPC. Going to V42 and better needs a computer to modem speed of 38400bps for best performance, and that's a definite no-no. Anything past 9600bps and we're into dodgy ground here folks, so where does that leave all these super fast modems, and where does it leave the folks that don't have MNP??

Well, the bottom line is, it isn't worth your while grabbing a super- fast modem. It IS worth getting your grubby mitts on a V22bis MNP 5 modem though - you ought to be able to drive it with no bother at all, although KDS interface users may have problems unless they can find a fix - which we'll come to another month.

If you go that route - MNP 5 and V22bis - you can do it for around the £300 mark - sometimes less if you shop around, and you'll get a modem that will pay for itself very quickly, assuming you use systems where MNP is supported. Telecom Gold has it, Maxwell House has it (on the second port), and lots of other BBS systems have it.

Those of you who don't have such esoteric gear - and that's probably the majority of you - will notice that there's a hell of a delay between the modem answering the rings and the BBS system coming up when there's MNP at the other end and no MNP at your end. There's a reason for this, and it isn't that anything's broken.

If you think about it for a mo, you'll realise that an MNP modem has to talk to ALL modems, not just its snooty brothers. So, what it does is this - it asks your modem whether it speaks MNP. This it does by sending a few characters down the line once the two modems have decided they can synchronise speeds. If it gets the right answer back, it starts a little conversation to sort out which level the two of them are going to use. If it doesn't get the right answer, it chucks MNP out of the window, and gets on with talking to your modem in a language it understands.

And here is where there's scope for some bright spark to do some coding (no, don't look at me, I'm not a programmer). On other machines, notably the IBM PC, there exists a number of proggies that do the MNP for you an a bog standard modem. All the program has to do is recognise the MNP handshake from the other end, and then do the error checking and compression that an MNP equipped modem would do. MNP to level four source code is available in the Public Domain, so some bright spark out there ought to be able to sort out whether or not our Arnolds can get away with this kind of thing. I don't know whether or not its possible - the CPC might not be fast enough - but if it is, does anyone fancy having a bash?? If so, leave a message for the SYSOP on Maxwell House and we'll get something sorted out.

Talking about Maxwell House, it seems there's some good stuff going on on there. I see my Bruvver, the Doc, has decided to feature some of the applications related chat from there in his column. I'm impressed! The CPC section is a very lively area on the BBS, and its nice to see that we've got some very knowledgable bods using it. Seriously, folks, if you haven't already got yourself online, you're missing out on some extremely enjoyable and enlightening fun.

Anyway, that more or less wraps it up for this month. Next month, I'll be sticking a few more numbers up for you to dial into as well as grabbing bits and bobs from here, there, and everywhere - rumour has it that a new CPC dedicated BBS has started up, so I think I'll go and have shufty, and capture a few frames for you to have a gander at. It's running on a CPC as well, which is a little bit nice, innit??

Till then, take care out there. Live long and prosper!







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